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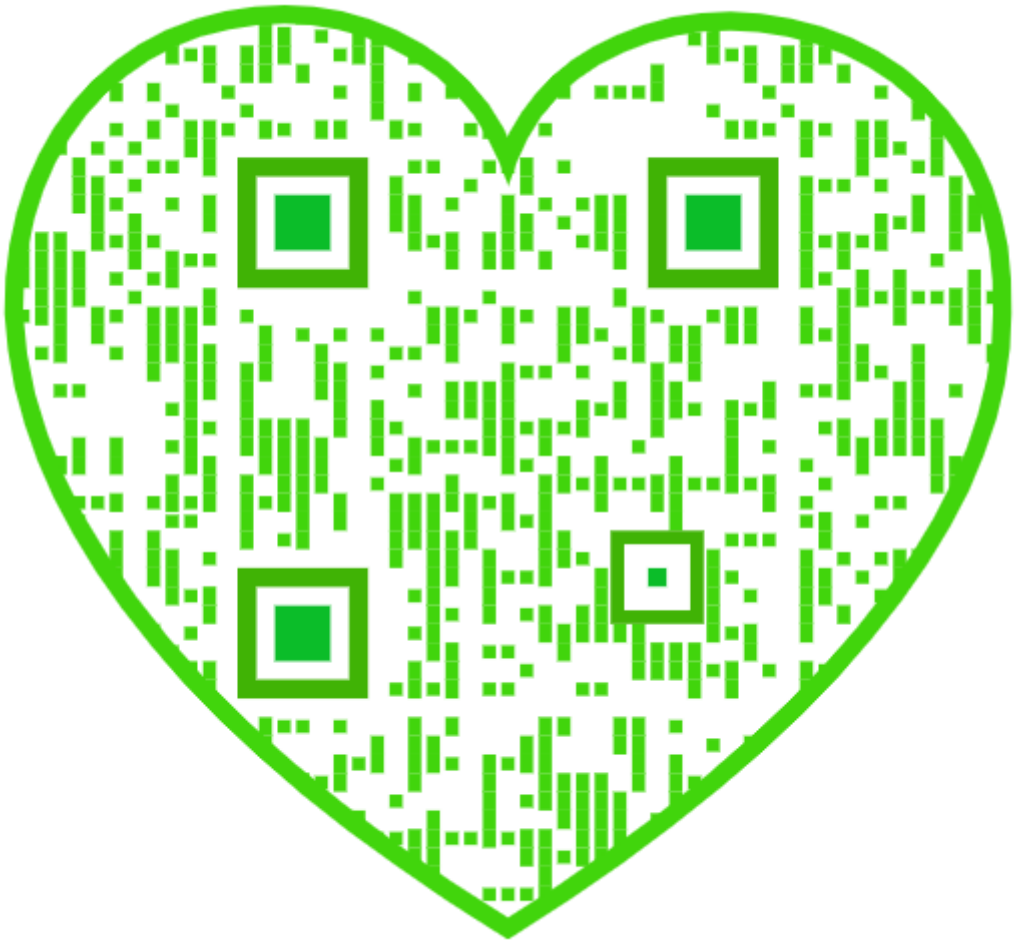

TREATISE ON BAKING

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SEP 11 1914

A TREATISE

ON

FLOUR, YEAST, FERMENTATION

AND

BAKING

TOGETHER WITH

RECIPES FOR BREAD AND CAKES

THIRD EDITION REVISED

1914

Wihlfahrt, Julius Ernst

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"PLEASE PASS THE BREAD"

Your problem is to have this sentence repeated as often as possible in the homes of your customers. It's obvious that the more bread they eat, the more bread you'll sell.

The question is: How can you make your customers increase the amount of bread they eat? The answer is: By making better bread.

As every baker knows, good bread is chiefly a matter of materials and methods.

Fleischmann's Yeast

and straight dough methods are daily increasing the consumption of bread. Besides, thousands who formerly baked their own bread have been won over to the baker because of the better quality of his bread.

The recipes in this book were prepared with the idea of bettering the baker's business. Use any of the bread recipes given, and "please pass the bread" will be more frequently heard around your customer's tables.

THE FLEISCHMANN CO.

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PREFACE.

In writing this book it has been my aim to present, in a form as condensed as possible, a work valuable to all persons interested in the baking trade.

One of my chief purposes is in the interest of practical baking, which requires exact knowledge of flours and fermentations, together with all such recipes known to me in which compressed yeast should be used.

All trades and professions have their sources of information. For the baker his is the recipe book.

Ideas based upon experience gained from trade books are more valuable in this competitive age than ever before, and those who do not believe in trade books should realize what they have lost through failure to compare their own ideas with those of others.

Of course, judgment must be exercised in the use of recipes, and they must not be condemned because the possessor of them can not at once succeed with every formula presented; as much depends upon the judgment of the workman.

Having had more than twelve years of actual practice and an equal number of years of study pertaining to the contents of this book, I have found that some of the supposed best authorities make the most discriminating statements against the food value, and others against the proper manufacture of bread, etc., and in this I would advise the theorist and the expert alike that I do not think it possible for them to be so proficient that they can not add to their existing store of knowledge by consulting the ideas of others. The theorist as well as the practical man needs the ideas of others, in order to evolve new ideas for himself.

Of all the food-cranks, none is more persistent than the bread-crank. Sometimes he condemns wheat bread as absolutely without nourishment; again he claims that rye and graham breads are too soggy, and that only white bread is wholesome.

Between the two extremes, a practical man must make his way carefully to arrive at the right conclusion.

The truth of the matter is that bread is now a perfect product, attractive and nourishing. Justly indeed it is termed the "Staff of Life."

Everybody eats of it daily with zest and enjoyment. Bread is an outpost of civilization. Where bread is on the daily bill of fare, health, comfort and all that modernization implies is found.

The notable changes in the manufacture of bread made in the past century have been made possible by men of enterprise, who led the way to success for others. Enthusiasm is necessary and is the key for many a man to unlock barred doors.

There is plenty of room for the progressive baker who recognizes that to succeed he must produce a good article, display it in a clean and bright-looking store, be attentive to his customers, and give value for money received.

With all the disadvantages of a small business, the small baker is not yet exterminated, and, after all, today, the same as in the past, the most successful baker is he who makes the best goods.

Some bakers believe that by substituting cheaper materials at a lower price, their success is assured; but the wise have learned that the best is always the cheapest in the end, and those following this plan will be assured of success.

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GENERAL REMARKS.

This book is divided into two parts, viz: "General Instructions" and "Recipes."

In general, the information is sufficiently condensed to be clear only to such as already have a knowledge of the baking business.

In many cases the mistake is made by publishers of recipe books of going too far into the explanation of the use of the recipe.

A clear, limited explanation is sufficient for any baker who understands his business, and such a man will appreciate condensed information more than if he is forced to spend a lot of time in unnecessary reading.

Again, the scientific names and the chemistry of baking is all well enough, but what is needed in the bakery is a practical man—a man who can use the theoretical points in a practical way, and it will be my aim to make these points as clear as possible.

THE BAKERY OF TODAY.

The dream of a few years ago—to eliminate the element of "*good or bad luck*" in the baking business—is realized, and it is, without doubt, not saying too much, that the manufacture of a compressed yeast, whose uniformity could be depended upon every day, both summer and winter, and the quality of which was maintained at the very highest possible standard, has done more toward accomplishing that result than any other factor.

Some attribute this success to the change of system in milling, some to the appliance of machinery; but, giving all due credit, the intelligent know that yeast is the mother of fermentation, the father of bread, which is the most desired article of food, so that it even found its way into our daily prayers.

It is a fact that the last 25 years have seen more advance in the baking business than the 75 previous years, and since Fleischmann's Compressed Yeast has proven to be the most uniform article used by bakers during all this time, I have decided to base my work upon its use.

Some claim that the elimination of yeast as a factor in bread production is bound to come, on account of the time wasted in fermentation, but everything known in this direction has proven that, compared with bread made with compressed yeast, such food has no room for comparison, and has been found to be a fake of the rankest kind in many instances.

The only success made in this direction is to shorten working hours and manufacture of bread by the use of more compressed yeast, but not by the elimination of same.

PART I.

GENERAL INSTRUCTIONS

WHITE WHEAT FLOUR.

There are two distinct kinds of wheat flour, known as "Spring" and "Winter" wheat flour.

The "Spring" wheat flour is the strongest, as it contains the greatest per cent of gluten, and for this reason it will retain more moisture, thus producing a greater yield in both weight and volume of bread.

In Spring wheat, the same as in Winter wheat, there are two distinct classes, namely, "Hard" and "Soft." This difference is more apparent in the Winter wheat than in Spring wheat flour; but in both instances a hard climate and rich soil produce the best wheat, a flour with more strength, which means "Gluten."

But why is it that a given weight of flour varies in the quantity of bread it will make?

It is a question of absorption of water and retention of moisture.

Flour consists, so far as bakers need trouble about, of two constituents, namely, gluten and starch. Starch is the water absorber and gluten the moisture retainer. Therefore, capacity for water absorbing qualities in a flour does

not mean strength. Again, the retention of moisture by the gluten does not represent water alone, as is so often stated. Generally speaking, the strength in flour considered by the baker is its toughness, elasticity and springiness, when made into dough. Some flours are good water absorbers and still lack strength, for, to be profitable, they must be good water retaining flours, and this is where the gluten comes in.

Of course, much depends upon the quality of gluten, as the quality differs exactly as the different grades of flour differ. In some flours, the gluten is so fine and delicate that, even if present in large quantities, is not capable of making a fair-sized loaf; again, in others the gluten is too hard, so that the flours must be over-fermented in order to get a good loaf.

These are the extremes on both sides.

The baker considers the tough-like flour, which makes a dough capable of stretching, and produces a sponge that is hard to break down when water is lifted on, as the ideal, with reference to strength, and the one with a high percentage of hard gluten. And so it is, for it has the sure sign of the strong flour; but it does not prove the most economical one, especially when the much-wanted flavor of bread is considered. When the flour is considered too strong, the fermentation must also be a very strong one, otherwise shapeless loaves, with great holes in them, will result. Therefore, a baker must consider what is suitable for him, as no general rule can be applied for all.

It becomes, therefore, necessary that the boss baker and the journeyman baker, alike, should have an exact knowledge of how to mix flours to get best results, and, at the same time, to supply the wants of the trade, considering flavor and size of loaves.

I will next consider the different grades of flour.

The "Spring" wheat flour, as before stated, is the strongest, and is rated, as to the quality, according to its strength.

The "Winter" wheat flour is divided into two classes, namely, "Red" Winter and the "Soft" white Winter flour. The red Winter is the harder, and has a reddish color when held to the light, as indicated by its name. The soft Winter wheat flour is the whitest, and its possible strength can often be judged by its color. In general, the white Winter wheat flour is mostly used for the manufacture of cakes and crackers, where gluten is of no value. But the baker, too, needs it, when he comes to consider the flavor and color of his bread.

Soft Winter wheat, which has a light, yellow tint, but whiter than Spring wheat flour—one that will keep the form when pressed in the hollow of the hand, and will fall apart easily when touched—may be considered a good flour to be used for blending. But a flour of the same color, when too dusty, or one of a blue tint, has no actual value or advantage for the manufacture of bread.

Soft white Winter flour contains less gluten than either the Spring or hard Winter. Its gluten is softer and more readily dissolved, acting as starter for dissolving the hard Winter gluten. The two combined facilitate the process of dissolving the Spring wheat gluten, through the action of the yeast. The Winter wheat flour, being more readily dissolved for fermentation, is the first nourishment for the yeast; hence, it naturally hastens fermentation.

Spring wheat patent flours retain the form given them by the pressure of the hand, when touched very lightly, they fall apart readily.

Clear Spring flour and hard Winter wheat flour have a more gritty feeling, and can also be distinguished by their color. The Spring patent has a yellow tint and is smooth to the touch. Clear Spring is of a more yellowish tint and is coarser, and has the same gritty feeling as has the hard Winter, only that the latter has a reddish tint. The white Winter is much softer to the touch than is the red Winter or the hard Winter wheat flour; and, again, the hard Winter is a degree softer to the touch than Spring wheat flour.

In this regard they compare as follows:

Clear Spring wheat flour is the hardest to the touch; then, in order, patent Spring, hard Winter, Winter patent, and last, soft white Winter wheat flour. Winter wheat flour, from which have been extracted the best ingredients in the manufacture of patent flour, will either make a hard form through pressure of the hand—one that will fall apart in lumps or will not form at all, but has the appearance of so much dust. Avoid such flours, even for the cheapest breads.

As before said, the quantity and quality of gluten contained in a flour constitutes its strength; but, again, gluten itself is divided into two distinct parts, namely, "Glutenin" and "Gliadin." A hard flour contains a larger per cent of glutenin, while a softer one usually contains a larger percentage of gliadin.

Gliadin is needed in larger proportions in the dough after the process of fermentation has taken place; but, unless rightly balanced with the glutenin, a flat and insipid loaf will result.

This is the most important point referring to the respective yield of flour and quality of bread. I will, therefore, treat this article separately and more thoroughly.

Low-priced flour does not mean economical flour, as the chief object must be to get the maximum quantity, with due respect for quality of bread.

Luckily, the miller today attends to the proper blending by mixing the various wheats to produce what may be termed an ideal flour. This obviates the necessity of a baker carrying too many different grades of flour on hand. There exists, no doubt, but what the miller makes his blend in the most conscientious way, and is in a better position to make the blends required. Nevertheless, it is not only necessary, but also becomes the duty for everyone who has the handling of flour, to ascertain its comparative value, by means of simple tests, easily accomplished, but whatever tests we may employ, the baking test is the final and only really satisfactory one.

Summing up, then, the gluten of a flour is its most valuable and important constituent, as it is the main substance distinguishing the characteristics of various flours. Again, the quality of the gluten should be its first consideration, as it really represents the stability of a flour. The water absorbing and retaining power of a flour is its stability. Flours that slack readily in the dough as fermentation progresses, and drop, before arriving at a certain standard proof, are by no means stable.

The stability of flour poor in maltose or sugar, can be increased by adding extra malt extract or sugar; again, flours lacking spring in oven during baking may be improved by the addition of extra lard. Consequently, by adding the proper amount of ingredients, a good commercial loaf is often produced from flour that would otherwise produce an inferior loaf of bread.

Another condition which controls the quality of bread is the temperature at which the flour is kept. Flour should not be exposed to an extremely low temperature, but should be kept, if possible, in a cool, dry storage, with an average temperature of 70° F. The storage room should be well ventilated, as flour absorbs and retains bad odors, so that it sometimes is noted in the bread.

Age itself has a tendency to whiten flour. If properly stored, it may be kept in good condition for a whole year. but by long storage flour is bound to lose some of its delicate flavor.

GLUTEN IN WHITE WHEAT FLOUR.

The value of flour, of course, depends upon the quality and quantity of gluten it possesses, and also upon that substance from the soil, which, in the analyzation of the soil and in the investigation into the growing grain, is known as protein. The gluten itself consists of two distinct parts, namely glutenin and gliadin. In fact, there is no such thing as gluten in the flour; but by making flour into dough, the two combine. Gliadin is of a sticky nature, something like gum, and adheres to the glutenin during the process of bread-making. The glutenin, in its natural state, is of a dry, granular consistency; the two combined form gluten.

In this form it is obtained by washing flour with water. The quality of flour varies in proportion to the amount of gliadin in the gluten, up to a certain limit. Patent flour, compared with Spring clear flour, shows gliadin of approximately 70% of the gluten in the patent flour and 60% in the straight Spring flour. In other flours, the gliadin rises as high as 80%; 70% of gliadin is the limit or ideal mark,

and a flour containing more than this percentage of gliadin is apt to produce a sticky dough.

In other terms, the value of a flour, or consequently its gluten, first depends upon the quality of such gluten, which means the right proportion of glutenin and gliadin, and the quantity of gluten contained is only to be considered as a second factor, it is of much less value than quality.

THE SEPARATION OF GLUTEN.

The "gluten" may be approximately determined as follows: Scale accurately twenty-five grams of flour, and in a suitable porcelain dish, mix with 13 to 15 cc of water, of about 80° Fahrenheit. The exact amount of water used should be 5% less than given for the absorption test. (See absorbing power.) Mix until the dough is clear, then cover the little ball of dough with water of the same temperature, and allow to stand for one hour exactly.

Next, over a fine hair sieve, wash out the starch and soluble matters, using a large excess of water, by kneading the little dough ball carefully between the fingers, taking care not to separate the dough. When the washings no longer become milky, and no visible particles of dough are left in the remaining gluten, it may then be considered washed clean. Allow this fresh gluten to lie in water of same temperature for half hour; next take from water and press out the surplus water, by working the gluten gently between the fingers, and drying the hands occasionally on a towel, and continue this operation until all surplus water has been worked off. Care must be taken that no particles of dough or gluten remain in the sieve, over which the dough was washed. Next bring this gluten, which is now in its

wet stage, on to a piece of counterpoised paper, and weigh it carefully. The amount of dry gluten can be readily calculated by multiplying the weight of the wet gluten by 4, and dividing the product by 3, which will give approximately correct results. The wet gluten may be dried at a temperature, ranging from 210° to 220° F., until the weight is constant, and figures thus obtained will agree very closely with those of the calculated dry gluten.

The general condition of a gluten, its color, tenacity, elasticity, stickiness and other points, must be carefully noted before the gluten is dried and the quality of the gluten judged by general results.

The gluten may be dissolved into its two original constituents, namely, glutenin and gliadin, by placing the wet gluten into a flask containing about 100 cc solution of 70% alcohol and 1% of salt; allow this to digest over a water bath, then filter.

The residue, after being rewashed with strong alcohol, represents the glutenin. The filtrate is distilled, the rest, containing the gliadin, is further evaporated until the weight becomes constant, and the gliadin is therefrom calculated.

(cc stands for cubic centimeter, which corresponds to one gram in weight.)

THE ABSORPTION POWER OF FLOUR.

The absorbing power of a flour is determined by weighing out 25 grams of flour into a suitable dish and adding water from a graduated burette, then making up the two into a dough of the proper, and a certain standard consistency, which latter always must be alike for all samples tested. The number of cc and decimals used of water as indicated

by the burette, are multiplied by 4, and the product expresses the percentage of water-absorbing power.

This result is next confirmed by making a sample baking, using the proper amount of yeast, salt and other ingredients, taking care to make the dough of the same consistency as before. Weigh the dough carefully and make a notation of its weight. Next proceed to work the dough in the usual, but very careful, manner into bread. Immediately, upon drawing from oven, the bread is weighed, and the loss calculated. This gives the moisture-retaining power of a flour. In order to get proper results, the sample dough must be carried at a uniform temperature, the length of fermentation must be always the same, and the same hold good for the heat of oven, which should be 425° F. Unless uniform conditions prevail, the retaining power of a flour will be affected.

THE STRENGTH OF FLOUR.

The strength of flour is dependent upon the quality, condition and quantity of gluten present, and can only be determined by making a careful test for absorption, followed up by a thorough baking test. Considering all points, the baking test gives the most satisfactory results.

THE COLOR OF FLOUR.

The color of a flour is best defined by the well-known "Pekar" test. A fine, creamy yellow shade is a typical color of a high-grade flour. Starchy and weak wheats usually yield white flours. The various shades may be defined as

ranging from a fine, creamy yellow, with good bloom, to a yellowish brown, brownish grey, greyish white, to a dead white color.

The color of various flours may be compared by pressing a small quantity of each on a piece of plate-glass or smooth wooden board, so no air-bubbles remain.

This is done by bringing the flour slick, from the upper to the lower end of the glass or board, and should leave a smooth surface. Next trim the edges.

Treat the other flours to be examined in a like manner. Next compare the samples, and note the various shades of them. The samples are next submerged obliquely into a basin of fresh water, immediately withdrawn, set in a slanting position, and allowed to dry on a moderately cool place. The colors are again noted, and marked differences in shades will be observed by comparison.

With a little practice in this work, anyone can easily compare the colors of flours.

NATURAL MOISTURE IN FLOUR.

The natural amount of moisture varies from 9% to 13.5%; for freshly milled flour 12.5% may be given as a good average. More than 13.5% should be considered an overpercentage of moisture, and would have detrimental effect on the storage properties of such a flour.

The moisture of a flour is determined by weighing carefully a small amount; dry same from 3 to 4 hours in a drying oven at 212° F., desiccate and weigh. Repeat the heating, cooling and weighing until the weight becomes constant. By the loss, calculate the amount of moisture contained in the sample under examination.

MALT EXTRACT AS IT AFFECTS THE MANUFACTURE OF BREAD.

The preparation made for bakers and sold to them as Malt Extract should be prepared at a comparatively low temperature in mashing, in order to conserve the diastase. The diastase and proteids in such an extract exist in a more concentrated form, than in higher temperature extracts. Of course the grade of Malt used in itself is of importance; pure barley malt extract is by far the most desirable and should be given preference over extracts made from blend of malt and other extracts.

Diastase in malt extract, is the active agent by which the saccharification of starch is caused, producing maltose sugar from the starch of the flour of other gelatinized starch products that may be added to the dough or developed in baking.

The formation of maltose sugar with small quantities of dextrine is productive of good flavor and unmistakably increases the moisture-retaining power in the finished loaf of bread. It indirectly improves the size and color by reason of the stimulating action which Maltose sugar has on yeast, by being directly fermentable, and thereby the work of the yeast is hastened and fermentation accomplished quicker and more thoroughly.

During the stages of fermentation yeast feeds on the maltose for the purpose of supplying alcohol and carbon dioxide gas. Diastase has by itself a slow action on the wheat starch, but when the starch is submitted to the joint action of Malt Extract and Yeast, the quantity of starch

affected by the joint action is greatly increased. If gelatinized starch products, say two percent to the weight of flour used, are added this action is accelerated and the dough thereby considerably benefited. The diastase, however, remains continuously active during the entire process of baking, producing maltose sugar all the while, until during baking a .....temperature of about 170° F. is reached, at which point the diastase itself is killed. But the rise in temperature in the interior of the loaf is more gradual, and so also is the action of the diastase greater, reaching its maximum near the center of the loaf. The yeast itself is destroyed at a much lower temperature and as the diastase remains longer active, it is evident that none of the maltose produced by this latter action can be fermented by the yeast, but remains in the bread as maltose and dextrine.

These substances account for the sweetness, improved flavor and moisture in the bread.

I can recommend everyone interested in the manufacture of the best bread to the use of malt extract. Malt extract improves the bulk of bread by its influence on fermentation. It improves the texture, bloom, moisture, whiteness, flavor and keeping qualities of the bread by its sugar producing qualities.

Other things being equal, the market value of a loaf of bread is in direct proportion to the amount of sugar left therein after baking.

The longer the fermentation is continued, the more of the sugar contained in the dough will be consumed by fermentation. Thus we develop "sour bread."

As malt extract continues to make maltose sugar, even during part of the time the bread is in the oven, its value to the baker becomes at once very pronounced.

VARIOUS ACIDS IN WHITE WHEAT FLOUR.

Generally speaking, the characteristic acid in the wheat flour is given as lactic acid and, for convenience, the acidity is expressed as percentage amount of lactic acid.

Wheat flour, when fermented with yeast, increases in acid contents in direct proportion with the quality of the yeast employed and with the temperature of the dough.

The percentage amount of lactic acid in a good flour is termed at 0.09 per cent and this percentage amount of acid consists, as far as is known in this direction, of 95% lactic, 4½% acetic and 1-10 to ½% of butyric acid.

Acids contained in this proportion in flour have beneficial influences, both for flavor of bread and assistance in fermentation.

During the process of fermentation the lactic acid increases the quickest and the acetic acid very slow; that is to say, if the dough is properly manipulated.

The increase of acid during fermentation is produced by bacteria, and these acids are known as organic acids.

Again, they do not affect doughs alike, as much depends upon the temperature of the dough.

A dough at too high a temperature will develop acetic acid very rapidly, and too much of this acid will cause an over percentage of butyric acid, which means bad results and likely sour bread.

The lactic acid, always present under normal conditions, unlike the acetic acid, will increase too rapidly in a dough at too low a temperature. Lactic acid, while greatly beneficial in a dough when present in the right proportion, is also detrimental when present in too large a quantity, as too much of it will assist the acetic acid to grow too

rapidly, and what effects this has upon the bread are visible in the foregoing.

Another main factor to be considered is the influence the quality of the yeast used has upon the acidity of the doughs. Bad yeast—yeast that is either too weak in strength or one with too much acid contents—will increase the acidity of the dough too rapidly; thus showing why a well-proportioned yeast should be used.

HEALTHFULNESS OF WHITE WHEAT, ENTIRE WHEAT AND GRAHAM FLOUR.

It is a general theory among many people that bread made from Graham and entire wheat flour is far more digestible than that made of white wheat flour.

Such, however, is not the case. White wheat bread, when properly made from a good quality of flour, is not only more digestible than the Graham and entire wheat breads, but also contains the largest amount of protein.

Graham and entire wheat flours show the highest percentage of gluten and protein before fermentation, and white wheat flour the largest after fermentation. The difference noticeable in this respect is decidedly in favor of the white wheat flour.

This is due to the fact that the Graham and entire wheat flours contain more acids, an over percentage of which is detrimental to fermentation.

The excess of acid contained in the outer part of the wheat berry destroys, during the act of fermentation, so much of the gluten that the food value of "Graham and Entire wheat breads" becomes inferior to that of "White wheat bread."

In the Spring of the year 1900 considerable interest was shown by some of the highest state officials of New York to substitute entire wheat bread for white wheat breads in state institutions, believing the former more nutritious. These attempts have led to a chemical analysis by the United States Government. This analyzation of the different flours, all made of the same quality of wheat, proved the white wheat flour the superior of all.

After baking, the white wheat flour not only proved the more digestible, but the protein contents were as follows:

White wheat flour.....12.5% protein.
Graham flour.....12.1 "
Entire wheat flour.....11.9 "

The claim, therefore, that the Graham and entire wheat flours are more easily digested, on account of the diastase contained in the wheat kernel not extracted from these flours, is not founded upon facts. Any intelligent person can easily judge upon the truthfulness of some of these published statements, from the following:

Diastase is no more than a ferment. No ferment can live in a temperature of 212° Fahrenheit, and a loaf of bread to be baked must reach the temperature of 212° F. in the interior of the loaf. The outside of the loaf is exposed to a temperature at the lowest of 300° F. and as high as 500° F. The statement, therefore, that the diastase can live during the process of baking is laughable, and if some of those who have made discriminating statements against white wheat bread would stop and consider this they would see their own errors.

Graham and entire wheat breads have their own advantage, since they have laxative effects, and are, therefore, valuable for people suffering with constipation; but

to state that they contain more nourishment than bread made of white wheat flour is going too far, and people making such statements will never be able to prove them.

The matter, sifted, proves the following:

The first point to be considered is not so much the chemical constituents of the food, as the ability of the stomach to assimilate the constituents of such foods and, second, our own preference for such foods, for unless they are partaken of with a relish little will be the benefits arrived at, and, furthermore, what is good for one may prove disastrous to another.

The healthfulness of bread, therefore, depends upon the purity and quality of its ingredients and care in its preparation.

In general, Graham and entire wheat flours are made of softer wheat than the white wheat flours used for the manufacture of bread. But, even if the flours are all made of the same wheat, the advantage of nutritious value will always be with the white wheat flour bread.

RYE FLOUR.

Rye flour contains less gluten than white wheat flour. Its gluten has a peculiar property of retaining moisture in the bread long after baking, but has not the same expansion qualities, as has the gluten of the white wheat flour.

The expansion of rye flour in the manufacture of bread is, therefore, governed not only by the quality of rye flour used, but also by the amount and quality of wheat flour with which the rye is blended.

Alone, rye flour would make too soggy a loaf of bread, hard to digest, while the addition of white wheat flour increases the nutritious value of the rye bread and renders the same more digestible.

The combination of the two flours, therefore, compares favorably as an article of food.

The flavor of the rye bread chiefly depends upon the process of fermentation employed in the manufacture of the bread and of the quantity, as well as quality, of white wheat flour used for the blend.

Rye flour is more fermentative than white wheat flour, and more salt must be used in the manufacture of rye bread, according to the amount of rye flour in the blend.

Too much rye flour should never be used, unless specially ordered, as too much of it will often cause a state of diarrhoea to the unaccustomed, and prejudice them against rye bread.

The stiffness of rye dough must be regulated according to strength of the flour. The softest rye dough makes the best bread.

All rye bread, to be digestible, should be baked on the sole of the oven, and not in tins.

POINTS ABOUT FERMENTATION.

The term fermentation was first applied to the action of yeast changing the sugars or carbohydrates contained in the dough into alcohol and carbon dioxide gas.

The different stages of fermentation are known as alcoholic, acetous and putrefactive fermentations.

The process of fermentation, which has for its object the manufacture of bread, must be of alcoholic nature.

Alcoholic fermentation is the one that makes the bread light and porous.

Acetous fermentation, when present in the right percentage, improves the flavor of the bread, but as soon as it becomes too strong it will cause the alcoholic fermentation to stop, and the result is a heavy loaf of bread.

The putrefactive fermentation is the last stage of fermentation following the acetous fermentation. Sometimes it is present in dough and causes the much-dreaded "rope in bread."

Alcoholic fermentation is the name given to the change which takes place in the maltos matter of the dough, forming carbonic acid gas, which, if the bread is baked at the right time, will lighten the bread and make it digestible.

Acetous fermentation, when present in the right percentage, softens the gluten and increases the expansion qualities of the dough. A remarkable fact about ferments is that the substances they produce, in time, put a stop to their own activity.

Fermentation, then, is the name given to the process, in which soluble ferments or enzymes play an important part, by which the carbohydrates, especially the sugars, are decomposed mainly into carbon dioxide and alcohol, with traces of acids and other substances.

YEAST.

The first and most important factor, to create a good and healthy fermentation, is, of course, good yeast.

But the question now arises, which is the best and most reliable, as well as most universally adopted yeast?

The intelligent baker knows that compressed yeast is the most uniform article in this line, and also that Fleischmann's Compressed Yeast is always found reliable. There are other brands on the market; but, generally speaking, the surest is the best and the cheapest in the end.

Most experiments of a scientific nature, where compressed yeasts were employed have been made with Fleischmann's Compressed Yeast, and, therefore, I wish to remind the reader that I base my statements on the use of this well-known product.

Some bakers buy low priced yeast in wrong economy; others make stock yeast or buy the same; again, others make potato ferments, using either stock or compressed yeast for stocking.

Certainly a nice bloom and flavor can be given to bread by the use of any of these yeasts, but the consideration of which is the best, most economical and most nutritive bread will teach that a good brand of compressed yeast has everything in its favor. The strength and quality of the yeast depends upon the care with which it is made. The yeast itself is divided into two distinct classes, namely, cultivated and wild yeast.

Cultivated yeast is represented in the form of a good compressed yeast, while stock yeast contains wild yeasts.

Yeast represents millions upon millions of small microscopic plants, of which the air itself is full. Therefore, if the yeast does not possess an overwhelming percentage of the right kind of these microscopic plants, the wrong fermentation will set in too soon. This causes a loss in yield, a different flavor and destroys the nutritive value of the

bread to a certain extent. This occurs exactly in proportion with the quality of the yeast used.

The concern that makes compressed yeast a specialty, wherein its production is of the first consideration, aims always to manufacture goods of a superior class. Having, as the originators and leaders in its business, a reputation to maintain, the best wages are paid in order to obtain the most skilled and experienced help. The best grain that the market affords is used in the manufacture of its yeast. Every batch is thoroughly tested. It must come up to a certain fixed standard of excellence or it is not sent out to the trade. The output of the compressed yeast factory of that class may be depended upon in all seasons of the year as being the best which money and science can produce.

Unreliability is the ever-present evil besetting cheap yeast; lack of uniformity is its chief characteristic. When yeast is a by-product and the manufacturer figures from a diversified standpoint, greatly inferior grain can be used, and is used. Low-priced and inexperienecd help is employed, thus greatly lowernig the cost price at which yeast can be turned out. When the grade of grain is fair and other conditions exceptionally favorable, yeast of that sort answers the baker's purpose for the time being and ostensibly saves him money, but this favorable state of affairs is inevitably short-lived. In a factory where the product of compressed yeast is a secondary consideration, grain is purchased in small quantities, and consequently often of an inferior quality. Yeast manufactured as a by-product is invariably and always the cause of trouble sooner or later for the baker who uses it. He will lose more money in a few days through the failure of cheap yeast than he could save in a year by the difference in price which he pays for cheap yeast and that which first-class yeast commands. That is but a simple statement of an incontrovertible fact.

The wise baker knows that it is not an easy matter to regain trade lost through the medium of inferior bread. Poor bread is the natural offspring of cheap yeast. The unwise discovers too late, to his sorrow, that it is false economy to use any other than the very best compressed yeast. In no other commodity does the old adage that the "best is always the cheapest" so fittingly apply as it does to first-class yeast in the baker's craft.

Considering the amount of work that a baker has to do today to bring his business to a paying basis, and then the amount of extra work he would have in making his own malt or stock yeast, it is plainly shown that good compressed yeast, ever ready for use, has everything in its favor.

The difference in yield between a good compressed yeast and lower grades of compressed yeasts is from 2% to 7%, and if stock yeast is used alone the loss of ingredients during fermentation will be as high as 15%. Considering that the loss in fermentation consists of the most nourishing properties of the flour, it is very easy to form an opinion as to which is the best and most inexpensive yeast to use for the manufacture of bread.

THE TEMPERATURE OF THE DOUGH.

By using compressed yeast, the time necessary for the fermentation can be accurately calculated, if the right temperature and the right blend of flours are used.

To get a uniform loaf of bread should be the aim of every workman. A batch of dough should never be made

without the temperature of flour and bakery being accurately taken and, from that, the heat of the water calculated, not guessed at.

A main point is to keep the temperature of the bakeshop as regular as possible by means of heating or ventilation.

The most favorable temperature for the fermenting room is 76° F.

The best temperature for a dough directly after mixing is 78° F. in summer to 82° F. in winter.

The following example will serve to show how the proper temperature of a dough may be obtained under unfavorable conditions:

If the temperature in the shop is.....85° F.
And the temperature of the flour.....67° F.
Then let the water be of.....82° F.

3)234° F.

Making the desired average.....78° F.

If the temperature of the shop is.....72° F.
And the flour.....62° F.
Then heat the water to.....100° F.

3)234° F.

Making the desired average.....78° F.

With the use of a good thermometer, which should always be found in a well-regulated bakery, there should be no excuse for not having good bread, nor delays in getting the bread ready by a specified time. Neither should a master-baker be excused for having the dough ready for the oven before it can receive it.

For high-speed dough mixers a special allowance must be made which is from two to thirty-five degrees Fahrenheit.

This allowance must be deducted from above calculation for water temperature.

DIFFERENT SCALES OF THERMOMETERS.

Having discussed the temperature at which doughs should be fermented, I think it appropriate to give some information as to how to change the different scales into Fahrenheit and *vice versa*, as the different scales are often published in trade papers.

The different scales are distinguished as follows:

(1) "R" signifies Reamur.
(2) "C" " Celsius or Centegrade.
(3) "F" " Fahrenheit.

In comparison, the differences are as follows:

"R"	"C"	"F"	
80°	100	212	Boiling point of water.
29 7-10°	37 2-10	99	Bloodheat.
17 1-10°	22 7-10	73	Summerheat.
9 1-10°	10 4-10	52½	Temperate.
0°	0	32	Freezing point of water.

MANNER OF CHANGING THE DIFFERENT SCALES.

To transform Fahrenheit into Reamur, deduct from degrees of Fahrenheit 32, the remaining sum multiply by 4, and divide the product by 9. The quotient received constitutes the corresponding degrees in Reamur.

To transform Fahrenheit into Celsius, deduct from degrees of Fahrenheit 32, the remaining sum multiply by 5 and divide this product by 9. The quotient received constitutes the corresponding degrees in Celsius.

To transform Celsius into Fahrenheit, multiply the

degrees of Celsius by 9, divide the product by 5 and to the quotient add 32. The result received constitutes the corresponding degrees in Fahrenheit.

To transform Celsius into Reamur multiply the degrees of Celsius by 4 and divide the product by 5. The quotient received gives the corresponding degrees in Reamur.

To transform Reamur into Fahrenheit, multiply the degrees of Reamur by 9, divide the product by 4 and add to the quotient 32. The result constitutes the corresponding degrees of Fahrenheit.

To transform Reamur into Celsius, divide the degrees of Reamur by 4, to the quotient add the original degrees of Reamur and the result is the corresponding degrees of Celsius.

SPONGE.

In setting sponge before doughing the process of fermentation is lengthened and, therefore, today, in nearly all the large bakeries straight dough process is employed. But, the same as the straight dough process has its advantage for the large bakery, so the sponge system, too, has advantages for the small baker, as it enables him to make all different kinds of breads from one sponge.

In general, the sponge bread is lighter and whiter than the straight dough process bread, but the latter has a better flavor after the bread is baked.

In small bakeries, where often different kinds and shapes of bread are required, they can be easily taken from the sponge; also, should it be necessary to cut down the amount of bread from what was first intended when sponge was set the sponge may be taken younger and less water lifted on, or, if the sponge is of age, less water and more

salt added. Also, if the sponge is too old, it can be regulated by either the addition of more salt or water; but the sponge with too much age—one that is over ready—if no precautions are taken, will make a small and pale loaf, and care should be taken to handle and mix such a sponge as little as possible, so as to save the small amount of strength remaining.

In such a case a slack dough is good, and the addition of a little extra sugar and lard, with a hot oven, will improve color, flavor and appearance of crust. A green or young sponge must be worked just the opposite; a tighter dough of higher temperature, less sugar and a cooler oven will bring better results in such a case. A sponge can be set to meet the requirements of time when it should be ready, as through the use of ice water or a small amount of salt, they can be kept in good condition from 5 to 8 hours.

The regular time for a sponge under normal conditions is from three and a half to four hours. Two pounds and a half of strong flour to one quart of water will make the average stiffness required for sponge.

In selecting flour for sponge bread, the points of relative flavor. strength and color should be considered. For sponge, stronger flour should be used than for doughing, and the proportion is as follows:

Out of ten points consider for sponge, five for strength and the other five equally divided in flavor and color. For doughing, take two points for strength, three for color and five for flavor.

For such a blend use half of water for the setting of sponge and lift the other half on for doughing. When sponge is broken down and mixed with water, lifted on for doughing, the mixture will then represent half of its bulk in water.

This means that if a baker wishes to make, for instance, 15 pounds of graham bread from the white bread sponge, he will dip six quarts of this diluted sponge into another vessel. The 6 quarts represent 3 quarts of water; and, since 1 quart of water on the average represents 5 pounds of pan bread, or 4¾ of Vienna, the advantages to make the different kinds of bread by dipping out sponge and adding other ingredients than used for plain bread can be easily seen, since a batch can be just as well calculated as if a straight dough is made.

A sponge has its different stages of ripeness and should never be set too soft. The stiffness of the bread sponge should be regulated by the strength of the flour used.

A sponge set medium stiff, that has risen and begins to recede, is ready for Vienna bread. For water-bread it should have its first drop, that is when the sponge drops back about two inches. The sponge at this stage will give more crust to the bread.

For rolls and sweet rolls the sponge should have its first drop, but, if a bread of a very large expansion and hard crust is desired, a stronger flour must be used for sponge and the same allowed to come up again after first drop, and the water lifted on as soon as it commences to recede the second time.

This will show the following: A green or young sponge will make a closer-grained loaf, with better flavor and lighter crust, while age in sponge means expansion, lightness and whiteness of loaf and a heavier crust.

Too much age in sponge will influence the color of the bread too much by making a pale loaf; but this can be partly remedied by washing the bread before baking with a dilution of egg-water or boiled cornstarch thinly diluted with water.

An over-ripe sponge will make a heavy and often sour

loaf of bread. Therefore, if a sponge gets ready too quick through change of temperature of the shop, the water and salt should be added to the sponge and the sponge broken down fine. In this manner it can be delayed considerable time without injurious results to the bread.

DOUGHING.

The sponge system of bread-making was so universally in practice until recently that the doughing in this respect needs but a short explanation.

After the sponge is ready the remaining water is lifted on, in which the salt has been previously dissolved. After the dough is mixed smooth then add the lard and mix thoroughly. If sugar is used, dissolve same with the salt.

After the dough is mixed, allow to rest for one hour and fifteen minutes to one hour and a half, that is, until it will sink back when the hand is inserted into the dough and withdrawn quickly; then cut the dough over, laying the same dry while working; allow to rest from 10 to 45 minutes, according to quality of bread desired.

A sponge dough should never get full proof the second time after the first proof is worked out of it; but, by laying same occasionally together, it can be kept in good condition until all is scaled off and moulded into loaves.

For straight dough—which is the more simple way of making bread—the yeast is dissolved in part of the water, the salt in another, then all the water lifted in a trough or machine and the flour added. The dough should be worked for at least ten minutes before the lard is added, and as soon as the lard is added and the dough worked smooth with the same, then allow to rest for proof.

It is a wrong theory to add the lard at the first stages of

doughing, as it will not give wanted results and the flour will not absorb the same quantities of water as if the lard is added after the dough is partly mixed smooth.

A dough is bad or good in the ratio to the perfect incorporation of the flour with other ingredients, the temperature at which dough is made and kept and the quality of material employed. All these points need their due consideration.

The temperature of the bakeshop during the operation of moulding is another important feature, as a dough ferments more while it lays on the bench than at any other stage. This shows that aerating of a slow dough often hastens fermentation and ripeness of dough.

So, the same as the sponge has its different stages of ripeness, a straight dough also has its different stages of ripeness.

A dough that would be over-ripe for a 1½ lb. pan loaf would not be ripe enough for rolls or a hard crusty bread and, again, much depends upon the oven. Therefore, no strict rule can be followed to meet all instances.

A hot oven can stand more fermentation or a more over-ripe loaf, as it will help to keep up the loaf in the oven, while too hot an oven for a green or young loaf would hinder the latter to develop and be apt to give too much color. This is the same in the sponge and straight dough systems, and the important point, therefore, is that each baker must know his oven and that he must bring on his dough to meet his baking facilities.

The best all-around system, and likewise by far the most prominent one, is that known as the "straight-dough method."

Very few who worked straight dough system ever return to the longer system of sponge dough. Shorter systems for the manufacture of bread are decidedly gaining

ground. Sweetness and palatableness in bread are bound to continue to prevail and this is best obtained by the straight dough method, which also gives the largest yield and by its simplicity of method is by far the best for commercial purposes.

Generally speaking, sponge is best used for fancy breads and straight dough for the average bread, for in this manner the advantages of both systems can be best appropriated.

A straight dough should never be made without the use of a thermometer, to get uniformity day after day, for after the dough is once made the temperature of the dough is not easily affected. In this respect the sponge has its advantage, since if the sponge is too quick, colder water can be lifted on for dough and *vice versa*. If the sponge is too slow the water may be heated, but should never be more than 112 F., since it otherwise may scald the sponge.

It must be remembered here that "Practice makes perfect," and a master baker must watch all conditions closely and guide his work according to his findings, since there are so many different items that are apt to change the march of a shop, and the water is not one of the least to be considered.

Sometimes water is hard and, again, in other shops soft, and this has just as much to do with the fermentation as has the temperature of the water. The softer the water the quicker the fermentation, while hard water will require more yeast.

The boiling of water sometimes has a softening tendency, but not always. A baker that is forced to bake with hard water should keep his temperature a little higher than if softer water is used, and here it must be stated that the cooler the fermentation is brought on the more resistance

will be in the dough and the better the flavor and uniformity of bread.

Therefore, such changes cannot be effected only by heating water, but also the quantity as well as the quality of yeast used must be considered together with temperature of the water.

YIELD.

The question arises: What causes the different yield of flour? And the answer is: The quantity and quality of gluten in them.

But unless we go about in a careful manner and study these conditions, little benefit will be derived from the advantages gained in making a careful and well-proportioned blend.

Therefore, after we have the blend, we must next consider the fermentation agent, "The Yeast." Of course, the strongest and most uniform yeast is the best for the yield question, since, through proper manipulation, there need not be any loss noticeable during fermentation, while in stock yeast and other cheap yeasts, the loss extends from 4% to 15% of flour constituents during the process of raising dough. This means that in a barrel of flour from 1 to 30 pounds are consumed during the act of fermentation, and this constitutes the most nourishing qualities of the wheat and flour. This is one of the main factors why good compressed yeast is most universally used.

Of course, the yield of a flour is also governed by the kind of bread that is being made, and for that reason we must divide bread into two classes, namely, Oven Sole or Crusted Bread, and second, Tin or Pan Bread. The former

of these are those that stand independently in the oven, and the dough for such loaves must be stiff enough and have sufficient strength of fermentation to stand upright without any support.

In addition to the various causes of variations in the relative yield already mentioned, there are others, such as sifting the flour directly before mixing of the dough and the proper application of machinery.

It is undeniable that the use of machinery compels a more systematic procedure. Likewise the loaf divider arrests considerable loss in scaling, whereas the dough-mixing machine itself, by giving the dough a good deal of agitation during mixing, develops the gluten, allowing the admission of more water than would be otherwise the case, at the same time producing a dough of the same consistency. The blade, or blades, sometimes called the agitator of a mixer, has a good deal to do with the length of time a dough must be mixed to derive best results. The best test is to look at the dough when finished and thereby judge the length of time best suitable for mixing a dough.

For example, a dough ordinarily mixed, say for comparison sake would require 6 hours for fermentation, then a dough properly mixed at higher speed would acquire its proper age in 4½ to 5 hours. By shortening the fermentative period naturally more of the desirable ingredients are retained in the dough. This is especially true in reference to the sugar contained in the flour as well as added sugars to the mix. Developing the gluten means partially the softening of the protein contents of a dough, which otherwise is entirely left for the fermentation to accomplish.

Another point to be remembered in favor of employing quick methods is that they prevent a dough from slackening

too much. In other words, a short fermentation increases the stability of the flour. This is an economical advantage.

To sum up, yields are increased by sifting flour immediately before using, and by shortening the period of fermentation. This is best accomplished by the use of a strong, uniform yeast, bakery machinery, and straight doughs.

AMOUNT OF WATER USED FOR DOUGHING WITH REFERENCE TO YIELD.

The quantity of water which a barrel of flour will absorb depends upon the strength of the flour, strong flour taking considerably more water than soft flour, also machine-made dough will take more water than a hand-made dough, and again a high-speed dough mixer will admit more water than a low-speed mixer.

The direct advantages derived from proper mixing are increased yield, more whiteness, better bread by being more nutritious, or more economical manufacture by saving of ingredients. This increase in yield is due to the development of the gluten, thereby decreasing the fermentative period and consequently increasing in the same proportion the stability of a flour and making possible the admission of more water.

The amount of water used to a barrel of flour differs in accordance with the different kinds of bread on the market. Dough for pan loaves should be made softer, than dough for loaves to be baked directly on the sole of the oven.

Of course, the baker himself must use good judgment and consider the quality of bread before he forces excessive yield.

The yield, therefore, is dependent first on the method employed for mixing, secondly on the kind and amount of ingredients added to a dough, and third upon the kind of bread made from such a dough.

The direct question of yield remains a much contested question and no answer to suit all circumstances can be given.

The aforestated contentions are for comparison of doughs made with the same amount of yeast. The amount of yeast used greatly governs yield. A cool dough, with plenty of salt and yeast, has a stimulating effect not only on the yield, but also on the quality and keeping quality of the bread.

SALT.

Salt has a deterrent action upon fermentation, even when used in very small quantities. Its action is directly upon the yeast and is not dependent upon other ingredients in the dough.

Salt neutralizes the acidity of the dough, gives flavor to the bread and governs fermentation.

Salt, the same as cold, retards fermentation. Therefore, lightness of the loaf can be influenced by the quantity of the salt used.

From 1% to 2% of salt is used in proportion to the weight of flour made into bread; for milk-bread use 1-3 less salt than for water-breads, and for sweet-breads only one-third of the salt employed for water-bread.

Plenty of salt and a good strong fermentation make a good deal better loaf of bread, as a weak fermentation, assisted by using less salt, not only promotes the likelihood of sour bread, but also makes a loaf without flavor.

ROPE IN BREAD.

This is the most dreaded bread disease and many bakers do not know the real cause of it. Years ago the cause of rope was ascribed to filth. It was then more common. The bakeries were, many of them, located in damp cellars and it required only excessive heat to develop rope.

Rope is a germ disease. The germs are most likely to develop during hot weather in bread that is not sufficiently fermented or not well baked. To make this point clearer, I might say that during extremely hot weather, especially on humid days, a dough heats up more than ordinarily during fermentation. Furthermore, the humidity lends the dough an additional amount of heat, which hastens fermentation with the results that the expansion of the same weight of carbonic acid gas is greater than on a cooler and less humid day. As this gas, which is necessarily produced during fermentation, is enveloped in a dough of higher temperature, it expands to a greater extent than its natural volume. In a word the dough becomes light without being ripe. When the baker turns a dough in this condition of immaturity, the bread will have a tendency to color too rapidly during baking, and consequently will, as a rule, be withdrawn from the oven without being sufficiently baked and containing too large an amount of moisture. Naturally it is also low in acidity and such a loaf, insufficiently fermented and insufficiently baked is most readily attacked by ropy germs. Too hot an oven would also have a tendency to bring about a similar condition. In all such cases I noted a premature mould appearing on the loaves as early as twenty-four hours after baking—before rope had developed. The percentage of acidity in a dough controls the premature moulding of bread as well as the development of rope.

Before bread can be ropy the germs or spores must be present in large quantities so as to have an opportunity to thrive and develop in the dough during fermentation. This proves that a bakery must be thoroughly infected with the germs or spores before rope can be developed in the bread.

Rope causes fine silvery threads in bread, which appear when the loaf is broken apart. Characteristics that accompany it are soft, wet, sticky and clammy crumb, a sort of foxy colored exterior, immature crust and a repelling odor. These characteristics are not present during the early stages and frequently do not develop until some twenty-four hours after the bread is baked.

The treatment for this dreaded disease is divided into two parts:

1st—Direct application to arrest the difficulty.

2nd—Sanitary measures to kill the germs and insure against a recurrence of the trouble.

The first part, arresting the disease, we will now discuss. I have had a good many cases under my care and treated them first by the direct application of organic acid, obtaining remarkably good results. I began by using lactic acid U. S. P. "Merck," one-tenth of one per cent of the weight of flour employed in doughing; that is one and six-tenths ounces of lactic acid for each 100 lbs. of flour used. I allowed the dough to ferment one-half hour longer than usual and by this method secured a loaf that did not differ materially from the regular bread to which the trade had been accustomed. I consider this very important.

The next step was to see that all stale returns of bread (manufactured before using lactic acid) were strictly kept

from the premises. These return loaves were burned or destroyed absolutely in some other way.

We then proceeded to clean the bakery and utensils by whitewashing or painting the walls, cleaning the floor and utensils either with live steam or with a hot solution of boracic acid. When live steam is used it must be introduced through a steam hose with a suitable nozzle; the pressure should be 90 lbs. and the nozzle should touch the utensils and the floor.

After cleaning, the shop was secured air tight and fumigated; either by the use of 40% U. S. P. formaldehyde, using a 10% solution, by adding one part to nine parts of water and sprinkling same freely over the floors; or formaldehyde candles, free from sulphur, were used to effect satisfactory fumigation.

In shops where baking had to be conducted continuously from the beginning to the end of the week, we sprayed a moderate amount of formaldehyde around the bakery every day—as much as we could without having the fumes affect the workmen. A thorough fumigation was resorted to at the earliest opportunity the following Saturday.

After two or three days we reduced the amount of lactic acid by one-third; after another week we cut down the acid another one-third, and continued to employ this small quantity for two weeks more, or until we were absolutely sure that no stale returns from any source could be the means of reinfecting the bakery.

Do not overlook the necessity of thoroughly cleaning the interior of all your wagons and the importance of requesting your grocer customers to keep all bread boxes open after removal of bread, so as to give the boxes a good airing.

I have attempted to eliminate ropy bread by making the dough stiffer, using less sugar, giving the dough greater age, baking bread more thoroughly and cooling it rapidly. In addition, I applied sanitary measures by sterilizing utensils, whitewashing and fumigating. In a number of cases, excellent results were obtained in this way without the use of lactic acid, but other cases would not yield to this treatment. Probably the reason was that it is almost impossible to get a bakery airtight, so that by fumigation you will kill all the rope spores. These spores which produce the disease in bread must be subjected to fumigation for eight hours, so you see how difficult it is.

I wish to emphasize in the strongest possible terms that the application of lactic acid in proper proportions immediately and absolutely arrests the development of rope in bread. I also wish to emphasize that the necessary cleaning and sanitary measures must be promptly exercised to avoid a recurrence of the trouble. The use of lactic acid will not have an unfavorable result on the quality of the bread and the baker need have no fear about using it in the proper proportions.

I fully realize that the study of rope involves many principles, but I wish to state once more that the application of organic acids is not only the quickest but the only safe and immediate remedy when applied in connection with the necessary cleansing and disinfecting measures.

In referring to organic acids, I wish to state that lactic is to be preferred, but when it can not be obtained, acetic acid in the form of vinegar may be applied with satisfactory results. When using vinegar, I employed 1% of 90 grain vinegar to the weight of flour used in doughing. After two or three days application we reduced this to ¾ of 1% and after a week to ½ of 1%, continuing to use this amount for at least two weeks more.

When vinegar is used to eliminate rope, there is bound to be a sour smell about the premises, but this disappears quickly after the baking and when vinegar is used in the proportions given no trace of sourness remains in the bread.

The use of vinegar, however, slightly affects the bloom and color of the crust; there is a paleness with an inclination to grey, which is not found when lactic acid is used. The inside of the loaf when vinegar is employed is whiter than usual. It would be perfectly safe for a baker experiencing an attack of rope to rely on the immediate application of vinegar, if he cannot obtain lactic acid or if for the sake of economy he prefers to use vinegar. The cost of vinegar would be approximately 3 cents for every 100 lbs. of flour and of lactic acid 8 cents for every 100 lbs. of flour.

I have experimented with smaller proportions of acids for a start and while laboratory tests show that these may be used, for practical purposes the proportions stated herein are the most satisfactory.

It has been stated that yeast may be at fault in propagating rope in bread. This idea was probably advanced before bakers knew the proper remedies for fighting rope, because there is no question but that organic acids, lactic or acetic (vinegar) will immediately check the trouble and all yeast has to be made in acidified media. In other words, yeast is manufactured in acid mashes and therefore cannot be infected by germs of rope.

To sum up; when the disease asserts itself, it is necessary to secure either lactic acid or vinegar immediately. Add it to the dough in the proper proportions by diluting it in the bulk of the water used. Dissolve salt and yeast separately in part of the water, add the salt solution to the bulk of the water containing the acid, next add sugar, milk

and malt and finally the flour. Start to mix and after the machine is in operation for a few minutes, add the yeast. Allow the machine to mix for a couple of minutes more until the yeast has been thoroughly incorporated and then add the shortening.

In connection with this treatment, I wish to call your attention especially to the fact that I allow the dough a half hour more time for fermentation when lactic acid is used, whereas by the use of vinegar I allow the regular period of time for fermentation.

As a final precaution, I warn once more that all stale bread must be kept from the premises until one has the assurance that the disease no longer exists and is entirely eradicated, which fact must be corroborated by the actual condition of returns of stale bread.

Further, all bread wrapped in waxed paper must be thoroughly cooled before being wrapped, which naturally requires a longer time in hot weather than in cooler weather. Wrapping bread too hot in airtight packages alone can be the cause of generating ropy bread. All bread, including such that is sold without being wrapped, should be so situated after baking as to secure a rapid and complete cooling before wrapping or packing. When rope in bread has made its appearance it is well to make the dough a trifle stiffer and to secure a strong fermentation, as more ripeness and lightness of dough is necessary to obtain the best results.

Adherence to strict rules as set forth herein and energetic application to enforce the sanitary measures have given me immediate results in eliminating rope in bread. The sanitary measures are absolutely necessary, lest some of the spores may remain dormant about the bakery, which a subsequent spell of hot weather, either the same or the

following summer may again develop into a sufficient amount of spores to cause a recurrence and an outbreak of new spores; in short, then the application of organic acids arrests the disease immediately. The application of proper sanitary measures eradicates the trouble.

The precaution against this trouble lies in making the doughs a trifle stiffer, allowing them to become very light on first rise before turning of dough by holding the ovens a trifle on the cool side to insure thorough baking and finally attend to the proper cooling of the bread before wrapping and packing. If this precaution if taken during extremely hot weather the chance for ropy bread is almost impossible. Remember an ounce of prevention is worth pounds of cure.

FLAVOR IN BREAD.

Bread possesses different flavors and the difference in flavor depends upon the amount of soluble carbohydrates and the quantity and especially quality of gluten contained in a flour. It also depends upon the process of fermentation and general manufacture employed as well as on the ingredients and amount of various ingredients added to a dough. The most important among these ingredients are the amount of salt and Yeast used.

Without a goodly amount of salt, the palate can not recognize the flavor; without it the bread would be insipid.

A goodly amount of salt requires a goodly amount of Yeast. Plenty of salt and Yeast assure best results.

Some of the chief causes for bread lacking in flavor are: Insufficient salt, insufficient Yeast, or doughs that are carried too long or too warm, or both.

VIENNA BREAD.

Vienna bread differs in nearly every shop, and in many bakeries is far from being the genuine article.

It is made both over the straight and sponge dough method.

The proper manipulation of a Vienna dough requires a tight dough, about 15 pounds of flour to every gallon of liquid employed for doughing, plenty of good yeast, and approximately ½ hour's more time in fermentation than would be required for pan bread.

It is also indispensable to have a good supply of steam for the oven.

It was the carefulness of the Vienna baker, together with the good material employed, that gave him his fame, and not the addition of milk in bread, as some bakers seem to believe. It is mostly due to the care taken that gives Vienna bread its quality.

HOME-MADE BREAD COMPARED WITH BAKERS' BREAD.

The name "Home-made" bread does not merely refer to bread made by the housekeeper, but it is also the name for a bread which a baker strives to make a perfect loaf as similar as possible to the home-made loaf. The bakers' bread, therefore, generally is divided into three classes, namely, water-bread, milk-bread and home-made bread.

The water-bread has more crust than the others, because it is largely the crust of this bread that gives it its flavor.

The Vienna bread is made with and without milk, and should never be made of an over-ripe dough. Its crust should be thin and crisp and the grain fine and close, and, if broken apart, should be flaky.

The home-made bread is either made with or without milk. More or less shortening is used in different bakeries, and sometimes white Indian meal, previously scalded, is added to get more moisture and a closer grain to the loaf. The main part in home-made bread, therefore, is not its whiteness and lightness, but its flavor, grain and the particular shape of the loaf to meet the demands of the trade.

This can be accomplished in several ways; one is the addition of Indian meal, which should be previously scalded by pouring the same into boiling water over the fire, and stir until scalded dry. Then take it off and add a small amount of lard, allow to cool off, dilute with water, and rub through a sieve before adding to the dough. Another way is to make a stiff dough and not give the bread too much proof before baking.

It can also be made of a regular dough, by taking a piece

of plain dough before it gets full proof, mould into loaves and bake off when double original size.

Therefore, it can be seen that home-made bread in itself has no degree of perfectness over a rightly made baker's bread, but is merely made to meet a demand of such who do not believe in a light and flaky loaf of bread.

BAKERS' MACHINERY.

The motive power should be first considered. It is my belief that electric motors are most practical, as they are always ready and require no special trained man. If belt-driven machinery is used, it is well to remember that a long drive (that is, a long belt) will better grip a pulley and prevent slipping. The power which a belt can transmit is proportionate to the speed at which it travels. To double the belt speed will double the capacity for conveying power.

The next machine of importance is the flour sifter. The important point in connection with this machine is, "sift your flour directly before mixing of the dough."

The mixing machine should be one that gives the dough a good deal of agitation, and the advantages derived from proper mixing are increased yield, more whiteness and better bread. (See yield.)

Likewise, the machine loaf divider, rounding-up machines, moulders and conveyors have long ago evolved from the experimental stage and have proven a complete success.

The large variety of machines on the market today makes it possible that all bakers interested in the use of machinery can be satisfied; they only have to study the suitability of their own case.

The proper use of machinery results in economy in labor, by creating more system, economy in manufacture, by increased yield and better bread of more whiteness of the crumb and more nutritious bread, by shortening the time necessary for fermentation.

HOLES IN BREAD.

Large holes in bread are caused through irregular fermentation. All bread will contain some holes, and the difference in this respect constitutes the grain of the bread. A loaf made of a young dough will have a closer grain than one made of a stronger fermentation.

The grain and texture of a loaf, therefore, is partially regulated by the temperature of dough, length of fermentation and amount of salt used.

But there is a limit. As soon as a fermentation passes a certain point, the acid contents of the dough will affect the holes in the bread, sometimes cutting and softening parts of the gluten, and thus cause large holes. This, however, is not the only cause. Bad workmanship, and, as before stated, improper fermentation, often caused through poor yeast, defects in dough-making and moulding of loaves being among them.

The expansion of unevenly distributed gas and particles of undeveloped gluten is mostly the cause. The former is usually caused through poor moulding by inexperienced bakers, or a dough is too tightly moulded after having too much proof.

The undissolved gluten is caused by either a poor ferment, by the use of poor yeast or too high a temperature of dough, which causes too much acidity in the dough. The heat of the oven is also very important.

In sponge bread the large holes are most numerous and often caused through the sponge not being properly broken down and the dough being poorly mixed.

Again, some bakers dust too much flour during the process of moulding, and this often causes the ruin of loaves through large holes.

Again, by the use of moulding machines, which have been in use for a long time, so that the rollers were considerably worn, I have noticed that the loaves would not curl up properly, and have traced the cause of large holes to this source.

Flour that has been in damp storage, or flour that has been exposed too long to a temperature below the freezing point, may also be the cause of large holes in bread.

The salt is another important factor, as improperly dissolved particles can be the cause as well.

There exists many conflicting opinions, simply because it is a rather difficult matter to correct the evil of "large holes."

I would recommend a softer dough; in fact, as soft as it can be handled to advantage; a cool fermentation, 4

ounces of salt to the gallon of liquid and sufficient yeast to bring the dough in time to the bench without prolonging the process of fermentation, and finally more malt extract in place of sugar and a goodly quantity of a well-refined oil.

EXPANSION OF THE LOAF.

The size of the loaf of bread is regulated by the respective age given to the dough. If you want a close-grained, medium-sized loaf of bread, scale your dough immediately after the second rise; if a larger loaf is desired, give your dough ½ hour more time after second turn. This refers to plain bread. In home-made and Vienna bread, the dough may be allowed to rest ½ hour longer after the "third" rise, providing a larger loaf is desired.

The respective time for a dough to acquire its necessary proof for the "first, second and third" rise, is as follows:

First rise	3 to 3½ hours.
Second rise	1 to 1½ hours.
Third rise	¾ to 1 hour.
Total time	4¾ to 6 hours.

According to warmth of dough and shop; also amount of yeast used.

The straight-dough method is the easiest and safest way of making the very best bread.

MILK BREAD.

A Spring patent of medium strength or a blend resembling the same, is best adapted to this class of bread, as in too strong a flour, with too much fermentation, also part of the ingredients added would be consumed.

This bread is made with both the sponge and straight dough system. For loaf bread a young sponge is required, and the straight dough handled equally young. For milk rolls, which require a larger expansion, especially rolls baked on the oven sole, like "German Coffee Rolls," a stronger fermentation must be made. A sponge for the latter should have the second rise, and taken before it recedes the second time. For young sponges, milk can be used to advantage in the sponge, while for milk rolls, unless all milk is used, it is best to use it in the dough. The reason for this is that less sugar can be employed and the same rich color given to the rolls. What the color has to do with the flavor of small bread, every baker knows. It is always safer to scald the milk before use, and then allow it to cool off.

RIPENESS OF SPONGE, SPONGE DOUGH AND STRAIGHT DOUGH.

A sponge set at the average stiffness should be ready for its first drop in from 3 to 4 hours, according to temperature in shop and strength of flour used. After the sponge commences to recede, it will take on the average half an hour before it has dropped back and commences to rise again. From this stage it will require another half hour

before it will be ready for the second drop. Therefore, a sponge ready for its first drop, will require one more hour to get ready for the second drop.

In straight dough, the age to the dough is given by allowing it to rest from 3 to 3½ hours, or until light enough so that it will recede if touched by the hand. Then lay your dough together, allow to rise again, but not quite as high as first time, about 3 inches less. Lay over again, and proceed to scale for plain bread.

For richer doughs, where more ingredients, as sugar and fat are added, allow doughs to get proof the third time, lay over once more, and 15 minutes thereafter it is ready for the bench.

The proper amount of space to give a straight dough in dough trough for full development is 7 cubic feet for every 100 pounds of flour used for doughing.

YEAST-RAISED CAKES.

In making yeast-raised cakes, the raw material employed, both in quality and quantity, is a very important point. To begin with the flour, the richer the cake the softer should be the gluten contained in the flour.

It is a well-known fact that the softer the dough for sweet goods the richer they will be after baking. Therefore, the stiffness of the dough must be regulated with the strength of the flour. A soft Winter wheat patent, one very fine in quality of milling, will give very good results. A stiffer dough, one more easily handled, can be made by the use of such a flour than if a blend containing Spring wheat flour is used.

Of course, there are different kinds of sweet cakes, and in such as American tea and coffee cakes, large expansion is often wanted. Then stronger flour must be added. But just as the percentage of strong flour is increased, so the shortening materials, such as eggs, butter, lard and sugar, must also be added in the same proportion, to overcome the effects of the strong flour upon the richness of the cake.

Sweet cakes are governed by a directly opposite rule from that which governs the bread-making, and this in direct proportion to the richness of the cake. The bread baker selects flours which shall absorb the greatest quantity of water, together with a due regard to quality, and this because flour is his most expensive ingredient.

In the manufacture of cakes it is the opposite, because in rich cakes, flour is about the cheapest substance, and is apt to increase the cost of manufacture if it is too strong. This is because the wetting up is not done by water, but partially by milk and the other parts in some cakes altogether by fats, eggs and such other materials which may be employed. Strong flours, which absorb large quantities of water, will also absorb a large quantity of eggs, and since an egg itself is a binding material in the manufacture of dough, it is for this reason that strong flour has little advantage to be used in cakes.

If strong flour is used alone, it will always make a drier cake, with same proportion of enriching ingredients, and lacks the mellowness of a cake made of a soft Winter patent.

The next point for consideration in the manufacture of fermented cakes is the yeast. Little need be said concerning this, as the nature and properties of yeast in fermenting dough have been fully explained, so that it is only necessary to remind the reader that more yeast is used for cakes than for bread.

A remarkable fact, and one which no first-class cake

baker will refute, is that, in shops where other yeast is employed, Fleischmann's Compressed Yeast is always used for the richest cakes, and, while some of the other yeasts sometimes make good bread, they often prove a failure when used for a rich dough. I wish to make the point very strong to the reader that the following recipes, especially in the manufacture of cakes, must be worked with Fleischmann's Compressed Yeast, as I would not wish to have the correctness of the recipes criticised through failure caused by the use of other yeasts.

The amount of compressed yeast for sweet cakes is from $\frac{1}{2}$ ounce to 2 ounces per quart of liquid, and, therefore, is regulated by the richness of the dough. All sweet doughs should be made and handled as soft as possible to improve the quality of the cake.

With reference to eggs, everyone knows that when properly used, they improve the lightness of the cake, and, therefore, act in two ways upon the quality of the dough. The other effect they have, besides improving the richness of the cake, is their binding qualities, and in this respect it can be figured that, unless a larger amount of shortening is used, one egg possesses the binding quality of $1\frac{1}{2}$ ounces of flour. Therefore, the recipe calling, for instance, for 4 eggs to the pound of flour, and if it is the desire to make this cake richer, the amount of eggs can be doubled, and then, accordingly, 6 ounces less flour be used. This would bring the result that only 10 ounces of flour would be used to the 8 eggs, which represent nearly a pint of liquid and naturally make a very soft dough; but the result will be, also, a very rich cake. This refers to the cake where no milk or water is used for doughing.

If milk is used and a larger amount in liquid measurement than eggs, only one ounce of flour should be reduced

from the original amount for each additional egg. For very rich cakes the white of the eggs should always be beaten to a froth, and when light, one ounce of each pound of sugar beaten into it thoroughly. The butter or lard is creamed with the rest of the sugar, and, when very light, the yolks, one by one, added. Great care must be taken that neither the whites of the eggs nor the shortening with the yolks griddles, and should this happen, it is better to save this mixture for some cheaper cakes, where it is of less importance. The safest way to prevent the griddling of the ingredients is to have them as cold as possible, and in very hot weather, set the mixing bowl into another larger one containing ice water. If butter is used instead of lard, it will not only improve the richness of the cake, but also its lightness. Butter itself has a lightening tendency when used in cakes, while lard alone has only a shortening tendency. The amount of sugar used, on the average, in all sweet cakes, should not be more than 25% of the weight of the flour; that is to say, 12 ounces to each quart of milk or liquid. If eggs are used alone, comparatively less sugar is employed, since too much sugar has the tendency to make the cake heavy, and if a sweeter cake is desired, naturally more yeast must be used.

Salt is used in proportion to the richness of the cake. For sweet dough in which milk is used predominantly, two-thirds of an ounce of salt may be used to each quart of milk, while in a dough where no milk is used, but eggs alone for wetting, a proportionate less amount of salt is employed. No general rule can be given for this, as it depends a good deal upon the quality of the cake.

Yeast-raised cakes naturally require a slower oven than bread, and the heat of the oven is regulated according to the richness of the dough.

The most difficult thing is to incorporate the sugar

shortening and eggs with the sponge, which should be lifted in very light and not beaten in.

GLUTEN FLOUR.

Gluten flour is a product made from white wheat flour, and its value for bread to serve in the case of persons suffering from diabetes, depends whether or not it is free from starch.

A good gluten flour sometimes can be obtained from starch factories, where the remaining gluten is dried and then powdered.

A good way to obtain a reliable gluten bread is by the following process:

Take white wheat flour, make into a stiff dough, using only water. Allow this dough to rest, submerged in water for about one hour. Next place the dough into a muslin bag, and wash under a stream of water until the washings are no longer milky and the water runs off clear.

Allow this gluten to lay in water over night, which softens the gluten, and makes it possible to add in the morning the necessary salt, a little bran or ground almonds, and a moderate quantity of egg. Add a small proportion of Compressed Yeast, allow the dough to ferment until light, then pan, and when double original size, bake in brisk oven.

MEASURES.

The attention of bakers in Canada is called to the difference between the Imperial Measure, commonly used in Canada, and the Wine Measure, used in the United States.

The Imperial Gallon is equal to 1 1-5 gallons, Wine Measure.

All recipes in this Treatise are based on the Wine Measure. Bakers using the Imperial Measure must adjust their calculations to the Wine Measure by subtracting one-sixth of Imperial Measure for every gallon specified in recipes.

PART II.

RECIPES

GENERAL HINTS.

Be careful in the selection of flour. The best is the cheapest.

In winter it is always well to store flour for immediate use where it can not get chilled.

Doughs and sponges should always be mixed well. Use as little flour as possible in kneading and moulding of dough.

Never stop kneading dough or mixing sponge, as it will often cause lumps in bread.

Always weigh the ingredients, especially salt, to obtain uniformity.

Never dissolve compressed yeast in water more than lukewarm, as hot water will kill the yeast.

A little more salt should be used in warm weather than in cold.

Cold and salt retard fermentation; heat hastens it.

Salt neutralizes the acidity in the dough.

Sugar hastens fermentation, if used in small proportions.

PLAIN BREAD—Pan Loaves.

196 lbs. (1 bbl.) flour.
2 lbs. Fleischmann's Yeast.
3 lbs. salt.
3 lbs. sugar (better use half malt extract).
2 lbs. lard.
60 to 64 quarts of water. (See page 44).

This bread is best made over the Straight-dough method.

Dissolve the salt and yeast separately in part of the water, add the salt solution to the bulk of the water, then add sugar, and next the flour. Start to mix, and after machine is in operation, add the yeast. Continue to mix for several minutes, then add the lard or other shortening that may be used in place of it. Mix dough thoroughly for 15 or 20 minutes. After mixing, allow to rise until it will recede to the touch of the hand. Lay over by pulling the ends and sides well in, and allow to rise again until light the second time. It is then ready to be scaled and formed into loaves.

Allow to prove until double in size, then bake in medium hot oven.

If the oven is not steam-tight, or no steam is available, then bread requires 2½ times original size for proper proof.

OVEN SOLE BREAD.

Use same ingredients as for plain bread, and give same age to dough.

The dough must be made stiffer, and only 56 to 60 quarts of water are added to the barrel of flour.

It is always best to round up pieces and allow to spring on for 10 to 15 minutes before moulding into loaves. A good supply of steam in oven will greatly improve this kind of bread.

HOME-MADE BREAD.

196 lbs. flour (1 bbl.)
2 lbs. Fleischmann's Yeast.
4½ to 6 lbs. sugar (better use ½ malt extract).
4½ to 6 lbs. lard or other shortening.
3 lbs. salt.
60 quarts water.

Scaled at 17 ounces, this will make, approximately, 300 loaves of bread. If scaled at 16 ounces, the yield will be about 318 loaves.

Follow same directions as for white bread, excepting that your dough should be allowed to rest ½ hour longer before scaling off to form into loaves.

Bake off at short proof, and use moderate amount of steam in oven.

COTTAGE BREAD.

Make same dough as described for Home-made Bread.

Cottage Bread is baked in round, low tins. Break the amount scaled for one loaf into 6 small pieces, cleave up same as for rolls. Set one piece in center of pan, and let remaining five form a circle. Allow to prove until double original size, and bake with moderate amount of steam in oven.

QUAKER BREAD.

Make same dough as described for Home-made Bread.

Three pounds of dry milk powder or four pounds of condensed milk may be added for this class of bread.

It is baked in a twin loaf pan, and should be placed in oven with rather short proof, in order to have the loaves burst nicely where they meet in the center. This bread requires only a moderate amount of steam for baking.

MILK BREAD No. 1.

196 lbs. flour.
2½ lbs. Fleischmann's Yeast.
3½ lbs. sugar.
3½ lbs. salt.
3½ lbs. lard or oil.
9½ lbs. sweetened condensed milk, containing 6% butter fat.
60 quarts water.

Dissolve the yeast in the bulk of the water, and proceed in the usual way in mixing of the dough.

If the dough is made at the proper temperature, which is from 78 to 82° F., according to season of the year and shop conditions, it should be ready in 4½ hours time for the fermentation, and then ready for the bench.

The respective time for this dough to acquire its necessary proof is as follows:

First rise	2½ hours.
Second rise	¾ hour.
Third rise	¾ hour.
To bench	½ hour.
Total time	4½ hours.

Give short proof before baking, and use moderate amount of steam in oven.

This makes an excellent seller, and is a very popular recipe with many large bakers.

MILK BREAD No. 2.

196 lbs. flour.
2½ lbs. Fleischmann's Yeast.
3½ lbs. salt.
3½ lbs. lard or oil.
2 lbs. malt extract.
6 lbs. sugar.
4 lbs. dry milk powder.
60 quarts water.

First rise	3½ hours.
Second rise	1 hour.
Third rise	¾ hour.
To bench	¼ hour.
Total time	5½ hours.

Otherwise, follow same instructions as for recipe for Milk Bread No. 1. This recipe is also very popular.

FRENCH BREAD.

196 lbs. flour.
56 to 58 quarts water.
2¾ lbs. salt.
1½ lbs. malt extract.
2 lbs. Fleischmann's Yeast.
3 lbs. of sugar.

Some bakers prefer the sponge method for this kind of bread, the larger bakers, however, mostly use the straight dough method.

If sponge is used, use same proportions of water for sponge and dough. Allow sponge to come to second drop. Next mix dough, and after mixing, allow to come to full proof. Time, 1½ hours. Work over and allow to rise for 30 minutes more. It is then ready for the bench.

Straight dough, which is the simpler way, should be allowed to become very light at first rise; in fact, so light that it will sink readily to the mere touch of the hand. Lay dough together thoroughly, allow to get nearly as light as first time, twice more; it is then ready for the bench.

The total time for fermentation of straight dough for French Bread is 4½ to 5 hours.

This bread, to be properly made, requires a good amount of steam for baking, and a moderately hot oven.

The respective time for straight dough to acquire its necessary proof, is as follows:

First rise	3 to 3¼ hours.
Second rise	1 to 1¼ hours.
Third rise	½ hour.
Total time	4½ to 5 hours.

SANDWICH BREAD.

196 lbs. flour.
54 quarts water. (See page 44).
6 lbs. sugar.
2 lbs. malt extract.
4 lbs. oil or other shortening.
3½ lbs. salt.
2 lbs. Fleischmann's Yeast.
2 lbs. milk powder, or 3 lbs. condensed milk (optional).

Sandwich, or Pullman Bread, sometimes also called Restaurant Bread, is best made by holding the dough rather tight. The above formula makes a very rich sandwich loaf. This dough requires more time than ordinary bread, as it carries extra salt. Make dough from 78° to 82° F., according to season of the year.

As they are placed in covered tins, extra precaution must prevail not to overproof them. The proper proof is about one inch from top of pan.

The respective time for straight dough to acquire its necessary proof is:

First rise	3¼ to 3½ hours.
Second rise	1 to 1¼ hours.
Third rise	¾ ¾ hour.
To bench	½ ½ hour.
Total time	5½ to 6 hours.

Sandwich Bread, to be right, should toast very readily, and toast made therefrom should eat short. The grain of the loaf should be very close.

In some bakeries, Sandwich Bread is made from the regular run of straight dough, in some cases even from the Vienna dough. To be right, however, it should be made over a special dough.

VIENNA BREAD.

196 lbs. flour.
54 quarts water.
2 lbs. Fleischmann's Yeast.
2 lbs. malt extract.
2 lbs. sugar.
4 to 8 lbs. lard or other shortening.
2¾ lbs. salt.

The respective time for straight dough to acquire its necessary proof, is as follows:

First rise	3¼ hours.
Second rise	1 hour.
Third rise	¾ hour.
To bench	½ hour.
Total time	5½ hours.

When dough is ready, proceed to scale into required size, and be sure to round up the pieces and allow to rest from 10 to 15 minutes before shaping into Vienna loaves. Lay the loaves smooth side down on cloth-covered boards, pinch up the cloth between loaves, and allow to rest until double in size; then bake with plenty of steam in oven. Oven should be about 20 degrees cooler than for pan bread.

Many larger bakers make up the Vienna bread with the moulding machine, which naturally saves a lot of labor.

In place of the cloth-covered boards, some bakers use boxes, heavily dusted with white or yellow cornmeal. In this case care must be exercised not to set the loaves too close together so they will touch when they reach their proof.

If boxes are used, the loaves must be laid smooth side up.

ENTIRE WHEAT BREAD.

150 lbs. entire wheat flour.
46 lbs. white patent flour.
56 quarts water.
3¼ lbs. salt.
5 lbs. molasses.
1 lb. sugar.
1 lb. malt extract.
2 lbs. Fleischmann's Yeast.
3½ lbs. lard or other shortening.

The directions for this bread are exactly the same as given for Home-made Bread, page 68.

In some localities, the use of molasses is not desirable, although it lends this bread a very delicious flavor. In that case, 4 lbs. additional sugar may be used in place of the molasses.

Dough made of entire wheat flour ages more readily. The white patent flour is added to make a better appearing loaf.

Sometimes entire wheat flour is made of softer wheats. In that case, more patent flour must be added, or at least half of the amount of flour used.

Bake off with short proof, and use very little steam in oven.

CREAM BREAD.

This bread may be made from any of the foregoing recipes for white bread. It is baked in round crimped and covered pans. Be careful not to overproof, as it will spoil the appearance of the loaf. The proper proof is to let the loaves rise until pans are two-thirds full.

GRAHAM BREAD.

98 lbs. white patent flour.
98 lbs. graham flour.
56 quarts water.
3 lbs. salt.
5 lbs. molasses.
1 lb. sugar.
1 lb. malt extract.
2 lbs. Fleischmann's Yeast.
3½ lbs. lard or other shortening.

The directions for this bread are exactly the same as for Entire Wheat Bread.

BOSTON BROWN BREAD.

25 quarts water.
20 lbs. rye flour.
20 lbs. yellow cornmeal.
20 lbs. graham flour.
½ lb. Fleischmann's Yeast.
1 lb. salt.
1 lb. sugar.
1 lb. lard.
6 lbs. molasses (½ Porto Rico and ½ New Orleans).
1 lb. baking soda.

Mix the two flours with the cornmeal, and set sponge to be 84° F., directly after mixing. Use the ½ pound of yeast and 12 quarts of water for sponge, adding sufficient of the mixed flour to set a soft sponge. Allow to ferment for 1½ hours.

Next add sugar, salt and molasses dissolved prior in the remaining 12½ quarts water, next add the lard. Mix the baking soda well with the remaining flour, and after the

sponge is thoroughly broken down with the liquid, add the flour, and proceed to mix until smooth.

Grease brown bread moulds well, then fill half full, and steam for 5 hours. Allow to cool, and pack in waxed paper.

RYE BLEND.

The Rye Blend is made by mixing the proportioned amount of rye flour with baker's straight. Some bakers, in order to get a nice bloom on the bread, add a small percentage of patent flour to the Rye Blend.

The Rye Blend is usually made by mixing from 25% to 33% of rye flour with baker's straight.

The exact amount of rye flour used depends on local conditions and the character of the bread desired. Each baker, therefore, must judge for himself as to the proper proportions of his blend.

RYE BREAD.

Sponge Method.

Set sponge, using:

30 quarts water.
90 lbs. flour, "Rye Blend."
1 lb. Fleischmann's Yeast.

Allow sponge to ferment until ½ hour after it commences to recede. The temperature of the sponge directly after mixing should be from 78° to 82° F., which should be regulated according to the season of the year and conditions of the shop.

If temperature of shop is normal, this sponge will be ready in 3¼ hours.

Dough.

28 to 30 quarts water. (See page 44).
3¾ lbs. salt.
106 lbs. flour "Rye Blend."

After mixing, allow dough to get full proof; lay over

and allow to rise from ¼ to ½ hour more. It is then ready for the bench. After being formed into loaves, they should be handled same way as described for Vienna Bread. (See page 72).

It will take a sponge dough approximately 1¼ hours to get its first full proof.

The sponge is apt to heat several degrees during fermentation, especially during the hot season of the year. It is, therefore, necessary to take the water for doughing accordingly cooler. Each, the sponge and dough made thereafter should have the same temperature directly after mixing.

RYE BREAD.

Straight Dough Method.

196 lbs. flour "Rye Blend."
58 to 60 quarts water. (See page 44).
3¾ lbs. salt.
2 lbs. Fleischmann's Yeast.

Allow dough, after it has been thoroughly mixed, to get full proof twice. It is then ready to be scaled and formed into loaves. Place loaves on cloth-covered boards, or set in dusted boxes, same as described for Vienna Bread. (See page 72).

The respective time for straight rye dough to acquire its necessary proof, is as follows:

First rise.....3 to 3¼ hours.
Second rise.....1 to 1¼ hours.

Total time.....4 to 4½ hours.

This bread is best baked off with a good supply of steam for oven during baking. Where no steam is available, it can be brushed over with water before being placed in oven

and again directly after baking, that is, the moment it is drawn from the oven.

The size of the loaf can be regulated by giving the dough more or respectively less age. More time for fermentation means a larger loaf of bread.

RYE BREAD.

Double Sponge Method.

196 lbs. flour "Rye Blend."
60 quarts water.
1 lb. Fleischmann's Yeast.
3¾ lbs. salt.

Set sponge with 12 ounces Fleischmann's Yeast, 15 quarts water and 40 pounds flour. Allow to rest 3 hours, at which time it should have about 2 inches drop.

Then add 30 quarts water, together with the remaining 4 ounces yeast; break sponge down fine, and add 80 pounds more flour. Allow to rest and rise until it breaks in the middle, or, in other words, until it commences to recede, which will require 2 hours. Now lift on the remaining 15 quarts of water, in which previously dissolve the salt, and with it break down sponge very fine. Next add the remaining 76 lbs. flour, and mix dough thoroughly.

Allow this dough to rest no longer than ½ hour, when it must be made up quickly. It will require proof for oven very rapidly. Where larger batches are required, it is better to mix this kind in halves. If this dough lays too long before going to the oven, it will burst the loaves in the oven.

Time for scaling until this bread is ready for the oven, approximately 45 minutes.

After forming the dough into loaves, proceed the same as described under recipes for Rye Bread, under caption, "Sponge Method."

Both sponges and dough should have a temperature of

78° to 82° F., directly after mixing, which temperature should be regulated according to the season of the year and shop conditions.

RAISIN BREAD.

196 lbs. flour.
60 quarts water.
3 lbs. salt.
2½ lbs. Fleischmann's Yeast.
5½ lbs. sugar.
2 lbs. malt extract.
4½ lbs. lard or other shortening.
7½ to 20 lbs. raisins.

Place the raisins the evening before into a suitable receptacle, and put enough water on them to cover. The next morning make a straight dough in the regular way, adding the raisins shortly before the dough is finished mixing. Handle dough same as described for Home-made Bread. (See page 68). When dough is ready, shape into desired loaves. One may then proceed in the regular way of general baking.

The amount of raisins used generally depends somewhat upon the price at which they can be purchased.

By laying the raisins in water over night, the yield is materially increased; also the bread will remain fresh for a considerably longer period of time.

CONCORD BREAD.

2 quarts milk.
4 ounces lard.
½ ounce salt.
2 ounces Fleischmann's Yeast.
1 ounce sugar.

Dissolve the yeast and the sugar in the milk; add sufficient flour to make medium stiff sponge, which should be

ready in about 2 hours, or when it has risen and begins to drop back.

Add the rest of the ingredients and flour to make medium stiff dough. Let rise again 45 minutes, place in pans, give full proof, and bake in medium hot oven.

PULLED BREAD.

To be made with either "Concord" or "Vienna" bread dough.

Break off into 3 ounce pieces, roll into balls, and let rise 15 minutes. Roll these parts on a well-greased bench into straight, even lengths. Press six of these strands together at one end, and weave them into a braid to form one loaf.

Set these loaves two inches apart in a baking sheet, with high rims, greasing between loaves; let rise until light, then bake same as bread.

When baked, allow to cool. It is then ready to be pulled apart. It will come apart in long, slender strips of which it was composed before it was baked; put these strips on a baking pan, and set in a hot oven for 15 minutes, when they should be quite crisp and well-colored.

They are nice served with morning coffee.

PLAIN ROLLS "Sponge System."

Ingredients used:

20 quarts of water.
5 pounds of sugar.
1 pound milk powder (or 1½ pounds condensed milk).
10 ounces malt extract.
12½ ounces salt.
5 pounds lard.
1 pound Fleischmann's Yeast.

Directions:

Dissolve the Yeast in 12 quarts of water and with this

set a sponge of medium stiffness, at a temperature of 80° F. Allow this sponge to come to second drop.

Time about three hours.

Dissolve the sugar and salt in the remaining 8 quarts of water, add to the sponge. Likewise the lard, milk and malt extract, and proceed to break sponge down fine. Next add sufficient flour to make a stiff dough. Allow to rise until full proof, cut dough over and lay dry, by dusting lightly with flour before knocking down. Then allow to rest 45 minutes more. When ready, mould into round balls, setting them in dusted proof boxes. Allow to rest for 20 minutes more; then, with a ¾-inch rolling-pin, press down in the middle; set on baking sheets previously greased, allowing about three inches in width and four inches in length for each roll. Allow to rise until double in size, then brush over lightly with a solution of egg water, and bake in brisk heat and a steam-tight oven. These rolls can also be baked on the oven bottom, and in this case proceed as described for German rolls.

PLAIN ROLLS—Straight Dough.

This is the simpler, safer and easier way of making good rolls.

Dissolve the Yeast and salt separately in part of the water, add the salt solution to the bulk of the water, then add sugar, malt and milk, and next the flour. Start to mix, and after machine is in operation add the Yeast. Continue to mix for several minutes then add the lard.

The respective time for this dough to acquire its necessary proof is as follows:

First rise	3½ hours.
Second rise	1 hour.
Third rise	¾ hour.
To bench	¼ hour.
Total time	5½ hours.

Otherwise follow same instructions as for recipe for "Plain Rolls, Sponge Method."

TURN-OVER ROLLS.

Take plain roll dough, but instead of pressing the rolling-pin straight down, give it a half turn. Grease the inside of one part of roll with melted lard, and lap over the other, pressing the two parts lightly together; then place on slightly greased baking sheets a little apart, and allow to prove until double original size. Then bake in brisk, steam-tight oven. Brush over with water as removed from the oven.

FRENCH ROLLS.

Take plain water-bread dough, mould into round balls and set into dust-proof boxes. Allow to rest for 15 minutes, and then form into finger shapes. Lay them, smooth side down on cloth-covered boards, and allow to rise until double in size. Place them on peel far enough apart so that they will not touch during baking; brush over with a light solution of egg water, then, with a sharp knife, cut the whole length half through the thickness of the roll, and bake them on oven sole. These rolls need a hot oven.

GERMAN DOUBLE ROLLS.

Same as German water rolls, but set two rolls very close together when placing on board, the split forming one straight line; then proceed the same as for German water rolls.

SOUP STICK.

Take plain water-bread dough and roll out the thickness of a lead pencil, and lay on greased baking sheets. Allow to get full proof; then bake in steam-tight oven until very crisp.

VIENNA ROLLS.

Take plain roll dough and mould into small round balls, lay them in slightly dusted proof boxes, and allow to rest for 15 minutes. Then roll them out into ovals about twice the length of their thickness. Place on greased baking sheets, brush over with egg water, and cut half the length of the roll. Allow to rise until double original size, then bake in steam-tight oven.

CRESCENT ROLLS.

Take plain roll dough, adding 2 pounds of extra butter to dough. Roll dough into round balls, the same as for rolls, allow to rest for 20 minutes, then, with a rolling-pin, roll into very thin sheets. Brush off all the flour carefully, then roll up very tight, about 6 inches long. The end of the dough must come in the middle of the roll; lay on greased baking sheets and into crescent shapes, taking care to have the end of the dough on top and in the middle of the roll. Brush off with egg water, and give full proof, then bake off in medium hot oven, and, after baking, brush off with water.

SALT OR CARAWAY SEED ROLLS.

The same as for crescent rolls, but should be baked in straight form.

They can be made either out of plain water roll dough or plain roll dough. If made out of water dough they should be baked on the oven bottom. Before baking, brush over with egg water, sprinkle with salt, caraway seed, or both. Bake until crisp.

GERMAN WATER ROLLS.

Take plain water-bread dough and proceed the same as described for plain rolls, only instead of placing and baking them on baking sheets, lay on cloth-covered boards or boxes, the split of rolls downward, setting the rolls in a row on the board, having the split lay with the width of the board. Pinch cloth up between rows of rolls, and when the board is filled, cover carefully.

Allow to rise until double in size; then bake on oven sole in steam-tight oven. To get a nice gloss on these rolls, it is necessary to have steam in oven before the rolls are put in.

KAISER SEMMEL.

Ingredients used:

10 quarts milk.
10 quarts water.
1 lb. salt.
1½ lbs. sugar.
1½ lbs. lard.
1 lb. Fleischmann's Yeast.

Set sponge with the water and Yeast. The sponge should be soft, using about two pounds of flour to a quart of water.

As soon as sponge commences to break, before receding add the milk and other ingredients and make a medium stiff dough. The average temperature of the dough should be about 76 degrees F.

Allow dough to get full proof, then knock down well, allow to rest for another half hour, or until it has again 2-3 of its full proof, knock down again and allow to rest for 20 minutes more. Roll into small round balls, the same as for rolls, allow to prove for 15 to 30 minutes, according to temperature, then make up into proper shapes. The

forming of Kaiser semmels takes considerable practice, and great care must be taken in the forming of these rolls. If dough is young, dust the balls with Rye Flour, before making up semmels.

VIENNA KIPFEL.

Take plain milk bread dough and add 10% of the weight of dough in butter; that is to say, for each 10 pounds of dough add 1 pound of butter.

After the addition of the butter, allow the dough to get full proof, then proceed the same as for crescent rolls, but roll looser.

Before baking, wash over with egg water and bake in medium hot oven.

PARKER HOUSE ROLLS.

Ingredients used:

1 quart milk.
1 ounce sugar.
½ ounce salt.
2 ounces butter.
1 ounce lard.
5 egg yolks.
2 ounces Fleischmann's Yeast.

Make straight dough out of the above ingredients and allow dough to get full proof, knock down and allow to prove again to full proof.

After knocking down the second time roll up into small round balls, allow to rest for 15 minutes. Then roll into oval shapes and place on previously greased baking sheets or into Parker House roll pans.

Allow to rise until double original size, then brush over with a strong solution of egg water and bake off in a medium hot oven.

LAUGEN PRETZEL.

Set sponge with two ounces of Fleischmann's Compressed Yeast and 4 quarts water. Sponge will be ready in 7 hours.

Dissolve ½ lb. salt in 8 quarts water, lift this on sponge, add 5 pounds lard and sufficient flour to make a very stiff dough.

Let dough rise for 1 hour, then run it through the rollers several times. Break off and roll into two-ounce pieces, let rest 15 minutes, then form into pretzel shapes.

Lay pretzels on boards covered with a cloth, give very little proof. Then put the pretzels into the boiling lye solution until they rise (about one minute), then place on peel, sprinkle with salt and put in the oven as quickly as possible. Bake until they are nicely browned.

The lye solution is made with 1 ounce of caustic soda to two quarts boiling water, and must be kept boiling hot when in use.

If solution becomes too strong from boiling down add more water.

GERMAN SCHNITZ BREAD—Hutzelbrod.

Ingredients used:

4 oz. Fleischmann's Yeast.
5 lbs. rye dough.
2 lbs. seedless raisins.
2 lbs. currants.
1 lb. finely chopped citron.
½ lb. chopped orange peel.
Gratings from 6 citrons.
½ lb. chopped almonds.
½ lb. dates.
½ pint brandy.
1 lb. prunes.
4 lbs. dried pears.
2 oz. cinnamon.

½ oz. ground cloves.
A pinch of allspice.

Mix the fruit and saturate with the brandy, not including the prunes and dried pears.

Boil the prunes and dried pears with sufficient water until tender. Strain off the liquid which should be 1 quart. Then add 1 ounce of salt to the liquid and allow to cool.

When blood-warm add the four ounces of Compressed Yeast and dissolve the latter. Lift this on the rye dough and mix well. Mix the spices with the white flour to be added for doughing. Then make medium soft dough, adding the fruit and flour at the same time.

(Use 2½ to 3 lbs. of white flour, according to strength).

Allow dough to rest for half hour, then scale off in 2 lb. loaves, form in round or oval shape, as desired, and place on baking sheets that have been previously dusted with flour.

Let rise until one-third above original size and bake in medium hot oven. This bread, if made properly, will improve with age and can be kept for months.

To store this bread, wrap in cloths and place in boxes or jars.

N. B.—Only the juice of prunes and dried pears is used; the pulp is excluded.

If no rye dough is on hand make a straight dough, using:

2 lbs. rye flour.
1 lb. white flour.
½ ounce salt.
1 quart water.
1 ounce Fleischmann's Compressed Yeast.

This dough will be ready in four hours, and in the meantime prepare the other ingredients to be used.

SWEET DOUGHS.

In making sweet doughs, always bear the following points in mind:

1. Weigh the ingredients carefully, especially the salt.

2. If water is used in place of milk, add 2 oz. more lard and 3 oz. more sugar to each quart of water used in the place of milk.

3. The sugar and lard or butter should be rubbed into a creamy consistency and eggs added slowly, one by one, to the mixture, and this added to the sponge when sponge is ready, as described in recipes.

4. Sweet dough must always be luke-warm and kept in a warm place (not hot) for if allowed to chill it will rise very slowly.

5. If oven should not be ready for the sweet dough at the calculated time, the dough can be kept back by laying together before reaching full proof. It may be laid together frequently in this way, thus gaining considerable time.

6. First-class material should be used, as it greatly affects the flavor of the goods.

7. Lemon flavor is the best for yeast-raised cakes.

8. Set sponge medium soft, using about 2¼ pounds of flour to 1 quart of liquid.

9. Sponge is ready when it "breaks." Do not wait for it to fall, as sponges must be taken younger for sweet doughs.

10. Always make sweet dough as soft as can be handled; it makes the cake richer and shorter than if made of a stiff dough.

11. When butter is used and the same is very salty, the amount of salt called for in the reciepe should be reduced accordingly.

12. Fruit should always be thoroughly cleaned and the raisins seeded before using; if not it will discolor the dough, and, after cakes are baked, they will look soiled and unappetizing.

All sweet doughs should be made in accordance with the following directions:

Dissolve the yeast in the liquid and set a medium sponge.

The sponge should be ready within from 1½ to 2 hours, or until it begins to break. In the meantime rub the butter, lard and sugar into a creamy consistency, adding the eggs gradually, one by one; then add the flavor and salt, which has been previously dissolved in very little water. Add this mixture to the sponge and beat together thoroughly for several minutes. Then add the necessary flour, making dough of the consistency described in the recipe for the kind desired. Let rest 1½ to 2 hours, until very light, and it is ready if it goes down when the hand is thrust into it. If raisins or other fruit are used the same should be dusted with the flour before added to the dough.

Always cover the dough well and keep out of draft, to prevent it from getting chilled. It is well to beat the eggs a little before adding to the mixture.

SWEET DOUGH No. 1.

Ingredients used:

4 quarts milk.
2 quarts water.
12 ounces butter.
6 ounces Fleischmann's Yeast.
12 ounces lard.
2 pounds sugar.
6 to 8 eggs.
2 ounces salt.
The grating of a lemon.
Flour.

Set the sponge with 2 quarts of water and 2 quarts of the milk, together with yeast and necessary flour to make a medium stiff sponge. Allow to rest until the sponge breaks.

Then add the remaining 2 quarts of milk, break sponge down fine; then add the rest of the ingredients and make medium stiff dough. Allow dough to rise to full proof, knock down and lay together well, allow to rest for ½ hour more, or until nearly full proof again. It is then ready to be worked up.

SWEET DOUGH No. 2.

Ingredients used:

2 quarts milk.
3 ounces Fleischmann's Yeast.
2-3 ounce salt (2 level teaspoons.)
7 ounces butter (better all butter instead of lard.)
7 ounces lard.
12 ounces sugar.
1 pint egg yolks.
Lemon flavor (grating of 1 lemon is best.)
Flour.

Proceed the same as for Sweet Dough No. 1, but great care must be taken not to allow the ingredients to griddle while creaming, especially when this dough is used for soft doughs.

PLAIN BUNS.

Take Sweet Dough No. 1, roll into small round pieces and place on well-greased baking sheet, so that they will nearly touch each other. Give full proof and bake in medium-hot oven and brush over with a solution of sugar water when removed from the oven.

TEA RUSKS.

The same as Plain Buns; but place the pieces very close together on the baking sheet.

CURRANT BUNS.

The same as Plain Buns, but add cleansed currants to the dough before rolling of buns.

HOT CROSS BUNS.

Use either Sweet Dough No. 1 or No. 2, and roll into small rolls, set into dusted-proof boxes, allow to rest for fifteen minutes, then press down crosswise with a rolling pin, same as used for plain rolls. Place on baking sheets the same as for buns and allow to get nearly full proof. Bake in medium-hot oven. Brush over with sugar water as removed from the oven. When cool sprinkle with powdered sugar.

PLAIN ZWIEBACK.

Take Sweet Dough No. 1 and roll into small finger rolls. Set very close together in well-greased baking sheets, allow to prove two-thirds over original size; then bake in

medium-hot oven. When cold, cut into slices about one-fourth of an inch thick. Lay the slices close together on a baking sheet and toast them in a slow heat to a light color. The slicing and toasting is best done after the rolls are one day old.

GERMAN ZWIEBACK.

Take Sweet Dough No. 2 and weigh off into three-pound pieces, mould round and allow to rest for ten minutes, then form into loaves 18 inches long, allow to rest until double original size, then bake lightly in medium-hot oven. After baking allow to rest for 24 hours, then cut into slices one-third inch thick and proceed the same as for plain Zwieback.

FROSTED ZWIEBACK.

Frost Zwieback with fondant, adding to the latter either lemon or vanilla flavor.

ZWIEBACK FOR INFANTS.

Ingredients used:

1¼ pounds flour.
1 ounce Fleischmann's Yeast.
1 pint milk.
3 ounces butter.
1 ounce sugar.
A pinch of salt.
A little anis.

Set a soft sponge with the milk, yeast and sufficient of the flour. Allow to rest until it begins to break; then add the rest of the ingredients and mix dough. Make immediately into a long loaf; allow to rise until double original size

and bake. After baking allow to rest 24 hours, then cut into slices the same as for plain Zwieback, sprinkle with sugar, mix with a little cinnamon and toast to a light brown color.

CINNAMON CAKE.

Use either Sweet Dough No. 1 or No. 2. Keep the dough as soft as can be handled. They can either be made up in 2-oz. cakes or large 1-lb. cakes.

For 2-oz. cakes roll into round balls, allow to rise 20 minutes, then flatten with palm of hand, brush over with melted butter, prick with fork and sprinkle with sugar and cinnamon. For 1-lb. cake weigh off into 18-oz. pieces, roll into round balls, allow to rest for 20 minutes, roll out into squares 9x7 inches, place on baking sheets, brush over with melted butter, prick well with fork and bestrew with a mixture of granulated sugar and cinnamon.

The proper proportion for this mixture of sugar is 1 oz. cinnamon to 1 lb. of sugar.

Allow to rise until very light, then bake in moderately brisk oven.

STREUHSEL CAKE.

Proceed the same as for cinnamon cake, except bestrew top with the following Streuhsel, instead of the mixture of sugar and cinnamon.

Streuhsel is prepared in the following manner:

Sift 1 lb. of flour with ½ lb. sugar and ½ oz. cinnamon; mix thoroughly; then add 4 oz. hot butter. Work the whole into crumbs. It is then ready to be sprinkled on the top of the cakes. A few chopped almonds can be added for either Cinnamon or Streuhsel Cake.

CINNAMON BUNS.

Use either Sweet Dough No. 1 or No. 2.

Roll out into a square sheet about ¼ inch thick, 18 inches wide and any length according to quantity desired. Brush over with melted butter and bestrew with sugar and cleansed currants and a little cinnamon.

Make this sheet of dough into a roll, commencing on the upper edge; then, with a sharp knife, cut into slices ½ inch thick.

Lay them on well-greased baking sheets which have first been strewn with sugar; let rise until double in size. (When placing on baking sheets place close together with cut side up and down.)

Then bake in a brisk oven; move baking sheets occasionally while in the oven, to assure being baked well on the bottom.

Brush over quickly with sugar water as removed from oven and turn out of pans immediately to prevent them from sticking to the pan.

DOUGHNUTS.

Use either Sweet Dough No. 1 or No. 2.

Keep dough as soft as can be handled; roll out into sheets of ¼ inch thickness, cut out with doughnut cutter or form in twists; lay on cloth-covered or dusted boards and let rise until double original size; then fry in hot-clarified lard, turning them constantly to assure uniform color.

BERLIN PAN-CAKES.

Use either Sweet Dough No. 1 or No. 2, keeping same very soft, the same as for doughnuts.

Roll up into round balls, allow to rise 15 minutes, then flatten them a little with the palm of the hand; place a little fruit jelly or jam in the middle and pinch the edges together to enclose the fruit, again forming a ball; lay them on floured cloth smooth side up, cover and let rise until nearly double size, and fry same in hot lard, same as doughnuts, turning them constantly.

COFFEE RINGS.

Use either Sweet Dough No. 1 or No. 2.

Make dough of medium firmness. For 1-lb. coffee rings scale off dough in 18-oz. pieces, break into three parts and roll into balls, and let rise 15 minutes; then roll into long strips of equal length and form into a braid, bringing the two ends carefully together, forming a ring; lay on slightly greased baking sheets, allow to rise fully double original size, brush over with egg wash, bestrew with chopped almonds and granulated sugar. The granulated sugar may be omitted, and the ring frosted after baking.

SAXON CAKES.

Use either Sweet Dough No. 1 or No. 2.

Make dough firm, adding 1 lb. raisins, 1 lb. currants and ½ lb. finely chopped citron. Scale off in 18-oz. pieces, mould into round loaves, let rise 15 minutes, press down in the center, over half through, with a rolling pin, giving the pan a half turn; then lap one part over the other, pressing together slightly with palm of hand. Place on slightly-greased baking sheets laying in crescent shapes, with the split on the outside. Set in proof box and let rise to double original size; brush over with melted butter and bake in moderately quick oven, when done brush over with lemon frosting or, if preferred, with melted butter, and bestrew with a mixture of sugar and cinnamon.

YEAST-RAISED PASTRY.

Use Sweet Dough No. 2, of medium stiffness.

Take 6 lbs. of sweet dough; let dough be of medium firmness. Roll out into a square 12x18 inches and set in a cool place ½ hour.

Then roll out, same as for Puff Paste, placing the butter upon it in little lumps, distributed all over the surface of the dough. Fold up the edges of the dough to enclose the butter, handling the same as in making Puff Paste. Roll out to ½ inch thickness, fold in three and roll out again; set in a cool place to rest for ½ hour. Then repeat the rolling, giving it two more turns; let rise again 15 minutes, and it will be ready for use.

SNAILS.

Use either Sweet Dough No. 1 or No. 2 or best Yeast-Raised Pastry.

Roll out into a square sheet, same as for cinnamon buns, brush over with lard or butter, bestrew with sugar and currants, then make into a roll, beginning at the upper edge. Cut off in pieces of 1 to 1½ inches thick, according to size desired; place on well-greased baking sheets with the palm of the hand and allow to rise; when double in size brush over with egg wash, then let rise again for 20 minutes and bake in brisk oven. While still hot, wash either with vanilla or lemon icing, or allow to cool and dust with powdered sugar.

APPLE CAKE.

Use either Sweet Dough No. 1 or No. 2, but better Yeast-Raised Pastry. Line a baking sheet with the dough 1-8 inch thick, prick well with a fork all over, allow the

dough to rise 15 minutes, then lay on it apples previously peeled, cored and cut in eighths, arranging the same in rows. Bestrew with currants and sugar mixed with a little cinnamon; allow to rise 20 minutes more; then bake in medium-hot oven until apples become tender. Instead of sugar and cinnamon, a custard may be poured on before baking, consisting of 3 oz. sugar, 1 pint milk and 2 eggs. Beat this custard thoroughly before pouring on cake. If hard apples are used, bake apple cake for 15 minutes; then withdraw from oven and pour on custard and finish baking.

FRUIT CAKE.

Use either cherries, pears, grapes or any other fruit desired, and proceed as for apple cake. Sour fruits need more sugar. Always pour on custard last.

The cakes can also be finished without custard, and then almonds, currants, orange and citron peel, etc., with sugar strewn on top of cake before baking.

SPECKKUCHEN No. 1.

Take either Sweet Dough No. 1 or No. 2, or better Yeast-Raised Pastry.

Line a baking sheet the same as for apple cake. Wisk eggs thoroughly (6 to 8 eggs for a medium-size cake) and pour into the lined baking sheet. Then divide the speck previously cut into small squares over the surface of the cake, sprinkle with a little salt and bake in hot oven.

SPECKKUCHEN No. 2.

Line a baking sheet very thin with fermented rye dough. Scald one cup of farina with sufficient boiling milk into a thick paste and allow to cool; then mix with six yolks, a little salt, a few caraway seeds and one fair-sized smothered

onion. Then beat the white of eggs to a froth and add to this mixture; cover the lined baking sheet with this, wash over with egg wash and then sprinkle with little squares of speck.

ONION CAKE.

Line baking sheet with Yeast-Raised Pastry, same as for apple cake. Smother fine-cut onions in hot lard; strain off superfluous lard and allow to cool; then add several eggs according to size of cake, a few caraway seeds, very little sugar and a little salt, place this mixture on a lined baking sheet and bake in a brisk oven. This cake is recommended to be served hot.

CHEESE CAKE.

Line baking sheet the same as for apple cake and fill with the following mixture:

Ingredients used:

1 lb. green cheese.
5 eggs.
6 oz. sugar.
1 qt. milk.
Little vanilla flavor.

Rub the cheese and yolks of eggs together until smooth, dissolve sugar in milk, beat the white of eggs to a froth and add to the cheese and yolks, then add the milk and sugar.

Fill baking sheet and sprinkle with a little cinnamon. Bake slowly and change place in oven to secure well-baked bottom.

CHEESE CAKE.

Same as preceding, but fill with the following:

1½ lbs. green cheese cream, together with 5 oz. sugar and 2 oz. flour. Add 3 eggs, 1 oz. chopped citron, 2 oz. currants and 2 oz. melted butter.

SPANISH SNAILS (Pan de Gloria).

Ingredients used:

1 pt. water.
12 eggs.
3 lbs. sugar.
4 oz. Fleischmann's Yeast.
1-3 oz. salt.

Sponge.

Dissolve the yeast and 1½ lbs. of the sugar in the water; then add the eggs; beat the whole until thoroughly mixed; then add sufficient flour to make a soft sponge. Allow this sponge to rise for three hours. The average temperature should be 80 degrees F.

Dough.

Add the remaining 1½ lbs. sugar, together with the salt (and 6 oz. of melted butter must be dissolved previously in as little water as possible.) Mix this well with sponge; then make a dough of the same stiffness as for rolls.

Allow to rest for 45 minutes; then break off into 3-oz. pieces, roll into round balls and allow to rest for 20 minutes. Then proceed the same as for crescent rolls, only roll them on a well-greased bench, instead of in flour, as done for crescent rolls. When the rolls are made lay them in snail form on well-greased pans. Allow to rest for 12 hours; then bake in brisk oven.

The dough for these rolls can be made the day previous to baking, so that if the rolls are placed on pans at 5 P. M. one day, they are ready to be baked off at 5 A. M. the following day. When cool sprinkle them with XXXX sugar.

KUGELHUPF.

Ingredients used:

1 lb. flour.
2 oz. Fleischmann's Yeast.
7 oz. butter.
4 oz. sugar.
7 eggs.
½ teaspoon salt.
3 oz. almonds.
½ lb. raisins.
½ lb. currants.
¼ lb. chopped citron.
1½ cups milk (2-3 pint).
Lemon flavor.

Set sponge with milk, which latter must be luke-warm, keeping the sponge rather soft, and allow to rest until it breaks.

The yeast is dissolved in the milk before adding the flour.

Meanwhile work the sugar and butter into a creamy consistency; when light add the yolks one by one. Mix the remaining flour with the fruit.

When sponge is ready add the mixture of the sugar, butter and yolks, mix very lightly, then add the whites of eggs previously beaten into a froth. Mix together half, then add fruit with flour and mix until smooth.

This should not be worked or beaten much, but the mixture should be lifted into each other, and as soon as smooth fill into kugelhupf moulds previously greased and dusted; the bottom of the moulds bestrewn with blanched and fine-sliced almonds.

Allow to rest until 2-3 over original size; then bake in moderate oven. When done turn out of moulds, allow to cool, then dust with powdered sugar or frost with white fondant flavored with lemon or vanilla.

BABAS.

The same as for kugelhupf, but use 1 lb. raisins, 1 lb. currants, ½ lb. citron, 2 oz. orange peel and 4 ounces of chopped almonds. Give this cake very little proof and bake in very cool oven.

When baked allow to cool, then saturate with brandy syrup. This syrup is made in the following manner.

Boil 1 pt. water with 1 lb. sugar, skim off after boiling, then allow to cool to blood-heat, add 1 pt. of Jamaica rum or brandy and the juice of 2 lemons.

SAVARIN.

Ingredients used:

1 gill milk.
19 oz. flour.
2 oz. Fleischmann's Yeast.
15 oz. butter.
2 oz. sugar.
A pinch of salt.
8 eggs.
The grating of 1 lemon.
1 oz. chopped citron.
2 oz. raisins.
A pinch of mace.

Set sponge with yeast, milk and 5 ounces of the flour and allow to rest for 45 minutes. In the meantime rub the butter and sugar into a creamy consistency, adding the eggs one by one; mix the fruit with the remaining flour. When sponge is light add same to the mixture of sugar and butter and, last, the fruit together with the remaining flour; fill into Savarin moulds, allow to rise and bake in a moderate oven. After baking allow to cool, then saturate with brandy syrup, the same as for Babas.

BRIOCHES.

Ingredients used:

3 lbs. flour.

3 oz. Fleischmann's Yeast.

2 lbs. butter.

18 eggs.

3 oz. sugar.

1 gill brandy.

½ teaspoonful salt.

Dissolve the yeast in ½ pint luke-warm milk, and with it make a medium-firm sponge. Cover with a cloth and let rise in a warm place. Work the other ingredients into a creamy consistency, beating in the eggs gradually. When sponge is ready put same into this mixture and, with a wooden spoon, mix or rather cut in the butter, eggs, etc., adding the rest of the flour; cover with a cloth and let rise until double original size (time 4 hours). Then work together and let rise anew; work together again and place on ice until it hardens. Then work into round balls, place on baking sheets and allow to rise about 1-3 above original size; brush over with egg, cut on top crosswise with pair of scissors, forming a cross cut, and bake in brisk oven.

These can also be made into different forms, such as twists, etc., or the round balls may be pressed with the palm of the hand, making a deep hole in the middle with finger; place a round piece of dough on top of the hole, forming a lid. They may also be baked in small or large Savarin moulds; if baked in large moulds the mould must have the tube in the center, otherwise the cake will not bake through.

GERMAN RING TWIST.

Ingredients used:

20 oz. flour.
2 oz. Fleischmann's Yeast.
5 oz. butter.
1 oz. sugar.
Grating of 1 lemon.
A pinch of salt.
¾ pint milk.

Set sponge with all of the milk, yeast and sufficient flour. Allow to rest until it breaks. Then add the rest of ingredients and mix dough thoroughly. Allow dough to rest for one hour; then break into three equal parts, mould into round balls, allow to rest until nearly double in size, then roll out in three equal lengths, form twist and lay in ring shape on baking sheet, bringing ends carefully together; allow to rise until double in size, then brush over with the solution of egg water, sprinkle with granulated sugar and coarsely chopped almonds and bake in a brisk oven.

HAZELNUT RINGS.

Use Yeast-Raised Pastry (1¾ lbs.) Roll out into a sheet 9 inches wide and 18 inches long, fill with the hazelnut paste, sprinkle with 2 ounces of sugar and 2 ounces of chopped orange peel and make into a roll, commencing on the upper end; lay in ring shape on baking sheet, bringing the ends carefully together; allow to rise until nearly double original size; brush over with a strong solution of egg wash and bake in medium-hot oven. After baking, frost with fondant flavored with vanilla.

The hazelnut filling is made in the following manner:

Rub 3 oz. of hazelnuts fine with sufficient cream to form a thick paste, then add 2 oz. of sugar, 2 oz. of finely chopped orange peel, together with a little vanilla.

PLUNDER PRETZELS.

Roll Yeast-Raised Pastry into a sheet about ⅛ inch thick, brush over with melted butter, then sprinkle with sugar previously mixed with a little cinnamon, fold into three from the upper and lower end, roll out to width of about 12 inches, then cut into two strips about ½ inch wide; give these strips a few twists, then lay in pretzel form on well-greased baking sheets; allow to prove until half over their original size, then brush over with a strong solution of egg water; then bake in moderate oven. After cooling, frost with fondant flavored with lemon or vanilla.

VANILLA CRESCENT.

Take Yeast-Raised Pastry, roll out into a sheet ¼ inch thick, cut into triangular pieces, brush over with butter, sprinkle with vanilla sugar, and roll up into crescents, so that the outer end is in the middle of the length and on the outside of the roll. Lay in crescent shape on well-greased baking sheets; allow to rise until double original size, brush over with egg wash and bake in moderately hot oven. After baking, frost with fondant flavored with vanilla.

BUTTER BREAD.

Ingredients used:

7 oz. butter.
2 oz. sugar.
11 eggs.
½ pt. milk.
1 lb. flour.
2 oz. Fleischmann's Yeast.
½ teaspoonful salt.
The grating of 1 lemon.

Cream the butter thoroughly, adding the eggs and flour alternately; that is, add one egg to butter and cream till smooth, then one tablespoonful of flour, and continue to cream till light again, continuing in this manner until all the eggs and flour are worked in. If the mixture becomes too stiff for creaming, very little of the milk can be added for creaming, but not until at least 5 eggs and respectively 5 tablespoonfuls of flour are worked in the mixture. When all the eggs and flour are mixed with the butter dissolve the yeast, sugar and salt in the remaining milk and add to the mixture little by little, rubbing constantly. The dough should be soft enough to run, so that when lifted into Turk-head moulds, previously well-greased and dusted, it will run smooth; allow to rest from 2 to 3 hours in a warm place and bake in a cool oven. They have to rise about three hours. The right proof is when they are about 2-3 over their original size.

ULMER BREADS.

Ingredients used:

15 oz. flour.

2 oz. Fleischmann's Yeast.

½ pint milk.

3 oz. butter.

3 oz. sugar.

4 eggs.

½ gill brandy.

1 teaspoonful anis.

The grating of 1 lemon.

2 oz. chopped orange peel.

1 pinch of salt.

Set sponge with milk and yeast with sufficient flour; allow to rest until it breaks (time about 45 minutes). Cream the sugar and butter together, adding the eggs one by one; then add the brandy and add this mixture to the sponge; mix smooth. Then add the remaining flour together with the fruit. Mould and allow to rest until double original size; then make up into breads, the same as home-made bread; place on greased baking sheets and allow to rise until double original size; then brush over with egg water and bake in medium-hot oven. They can also be baked in single-loaf baking tins.

STOLLEN.

Ingredients used:

37 oz. flour.
3 oz. sugar.
10 oz. butter.
4 eggs.
1½ pts. milk.
2 oz. Fleischmann's Yeast.
½ teaspoonful salt.
5 oz. raisins.
Grating of 1 lemon.
2 oz. chopped almonds.
1 oz. chopped citron.
A pinch of cinnamon.

Set sponge with milk, yeast and sufficient flour; allow to rest until it breaks; in the meanwhile cream butter, sugar and eggs to a creamy consistency. Add this to the sponge and mix until smooth. Mix the fruit with the remaining flour, together with the cinnamon, and finish dough. Allow to rest for one hour; mould into round pieces; allow to rest again until they have proof enough to be made up in same

shape as Vienna loaves. Lay on boards covered with cloths, same as Vienna loaves, and let rise until nearly double in size; then press down with rolling pin, the same as for turn-over rolls, and lift the two parts over each other, pressing them slightly together. Lay in crescent shape on well-greased baking sheets; allow to rest 20 minutes more; then bake in brisk oven. When cool, frost with vanilla icing or fondant.

SAXON CAKE.

Use Sweet Dough No. 2, adding 1 lb. raisins, 1 lb. currants, and ½ lb. finely chopped citron; scale off in 18-oz. pieces, mould into round balls, and proceed the same as for Stollen.

MUFFINS, GEMS, GRIDDLE CAKES, ETC.

BAKED APPLE DUMPLINGS.

Take Yeast-Raised Pastry, roll out into squares large enough to lap over the apples; peel apples and core them. leaving the apples whole; place the apples in the center of the square pieces of dough, which must be previously brushed over with water; fill the hole in center of apple with a mixture of sugar, a little cinnamon and a few currants; then lap the dough over the apples from all sides, and set them, smooth side up, on well-greased baking sheets; prick with fork around the side of the apple to permit the steam to draw off while baking; also make a hole on top reaching down to the hole in the apple; allow to rest for 20 minutes, then brush over with egg water and bake in moderate oven. When done withdraw from oven, sprinkle with a mixture of sugar and cinnamon, then re-enter in oven for 2 minutes.

WAFFLES No. 1.

Ingredients used:

1 quart milk.
1 ounce Fleischmann's Yeast.
2 pounds flour.
4 eggs.
3 ounces sugar.
1 teaspoonful salt.
A little grated nutmeg.

Set sponge with milk, which should be luke-warm, and allow to rest until it drops back and commences to rise again; then add the rest of the ingredients and beat until smooth. If the dough is too stiff, add a litle more milk, if too soft, more flour. A good deal depends in this respect upon the strength of the flour used. Allow dough to rest 15 minutes more, then bake in hot waffle irons.

WAFFLES No. 2.

Ingredients used:

4 pounds flour.
2 ounces Fleischmann's Yeast.
15 eggs.
12 ounces sugar.
1 pound butter.
1 teaspoonful salt.
A little mace.
1½ quarts milk.

Set sponge with milk, which should be luke-warm, yeast and sufficient of the flour, allow to rest until it has its first drop, then add the yolks together with the sugar and butter which has been previously creamed. Next, add one-half cup milk in which dissolve the salt, beat again until smooth, then add the whites of eggs previously beaten into a froth. If the mixture is too stiff add a little more milk before adding the white of the egg. Mix batter a little stiffer than for wheat cakes, allow to rest for 15 minutes and it is then ready.

WAFFLES No. 3.

Ingredients used:

15 ounces butter.
12 eggs.
5 ounces sugar.
2 ounces Fleischmann's Yeast.
½ teaspoonful salt.
Lemon or nutmeg.
½ pint milk.
19 ounces flour.

Cream the butter by adding 1 egg, next 1 tablespoonful of flour, and so on until all the eggs are added to the butter. In the meantime dissolve the yeast, sugar and salt in the milk, which should be luke-warm; next add this to the creamed butter, mix smooth and, last, add the remaining flour. Place one big spoonful of this mixture in the middle of the hot waffle iron previously greased, then close the iron and bake them, during which process the waffle iron must be frequently turned until the waffles have a nice brown color. After waffles are cooled sprinkle with powdered sugar mixed with cinnamon.

WHEAT GEMS.

Ingredients used:

1¼ pounds sugar.
1¼ pounds lard or butter.
12 eggs.
2 quarts milk.
2 ounces Fleischmann's Yeast.
½ ounce salt.
4 pounds flour.

Set sponge with milk, which should be luke-warm, yeast and all of the flour. Allow to rise until it breaks, time 45 minutes to 1 hour. In the meantime, cream the sugar and shortening, adding the eggs one by one. When sponge is ready, combine the two mixtures and beat thoroughly. Fill into well-greased gem tins, allow to rest for 15 minutes, then bake in a hot oven.

This will make 175 fair-sized gems.

WHEAT MUFFINS.

The same as for wheat gems, using only one-half the sugar, 4 ounces more shortening than used for wheat gems.

GRAHAM GEMS.

Ingredients used:

4 ounces sugar.
1 pint molasses.
1¼ pints lard or butter.
12 eggs.
1½ quarts milk.
2 ounces Fleischmann's Yeast.
½ ounce salt.
2 pounds white flour.
2 pounds graham flour.

Set sponge, using all the milk and flour; allow to rest until it breaks. Cream the lard and sugar, then add the eggs one by one, and last, the molasses; add this, together with salt, to the sponge. Then proceed the same as for wheat gems.

GRAHAM MUFFINS.

Ingredients used:
½ pint molasses.
2 ounces sugar.
1¾ pounds lard or butter.
12 eggs.
2 quarts milk.
2 ounces Fleischmann's Yeast.
½ ounce salt.
2 pounds graham flour.
2½ pounds white flour.
Proceed exactly the same as for Graham Gems.
This will make 175 medium-size muffins.

RICE MUFFINS.

The same as wheat muffins, except add 1 pound rice, which has been previously boiled and drained. Add two whole eggs to rice, and rub smooth before adding the mixture; then beat whole until smooth.

This mixture will make 200 medium-size muffins.

GINGER GEMS.

Same as graham gems, but omit the graham flour and use in all 4 lbs. white flour and add 1 oz. finely-ground ginger and ½ oz. ground cinnamon to mixture.

CHOCOLATE GEMS.

The same as wheat gems, but use only 1 lb. of shortening instead of 1¼ lbs., as in wheat gems, and add 4 oz. of melted bitter chocolate to the sugar and shortening before creaming. Add a little vanilla flavor.

CORN MUFFINS.

Ingredients used:

1 quart milk.
2 lbs. white flour.
1 lb. corn meal.
2 oz. Fleischmann's Yeast.
3 oz. sugar.
9 oz. butter.
6 eggs.
½ oz. salt.
A little nutmeg.

Set sponge, using all the milk, yeast, white flour and cornmeal. Sponge should be luke-warm. Allow to rest until it breaks. Time, 1¼ hours. Cream sugar and butter, add the grated nutmeg and salt, and last, the eggs one by one, creaming in between. Add this mixture to sponge when ready, and beat whole thoroughly until smooth.

Fill in muffin rings, allow to rise for 15 minutes then, bake in a hot oven.

CORN GEMS.

Ingredients used:

1 quart milk.
2 lbs. white flour.
1 lb. corn meal.
2 oz. Fleischmann's Yeast.
9 oz. sugar.
6 oz. butter.
6 eggs.
½ oz. salt.
½ grated nutmeg.

Procced the same as for corn muffins.

CORN BREAD.

Use either corn muffin or corn gem mixture, and put into greased baking sheets or pie-plates, about ¾ of an inch thick; allow to rise for 15 minutes, then bake in hot oven.

EGG MUFFINS.

Ingredients used:

3 lbs. white flour.
12 oz. sugar.
1 lb. butter.
½ oz. salt.
6 eggs.
6 yolks.
A pinch of mace.
2 oz. Fleischmann's Yeast.
1 quart milk.

Mix and bake the same as described for wheat muffins.

POP-OVER MUFFINS.

Ingredients used:

2 quarts milk.
2¼ lbs. flour.
12 eggs.
1 oz. salt.
2 oz. Fleischmann's Yeast.

Set sponge with milk, flour and yeast, which should be luke-warm. Allow to rest for 45 minutes; then add the eggs and salt, and beat the whole for 10 minutes. Fill into greased muffin rings, filling the latter ½ full, and bake in hot oven.

POTATO BISCUIT.

Ingredients used:

8 boiled potatoes of medium size, mashed very fine.
4 oz. melted butter.
1 pint milk.
2 oz. Fleischmann's Yeast.
2 oz. sugar.
Flour to make soft batter.
2 eggs.

Stir all the above ingredients together, except the butter and eggs, and let rise until it breaks. Then add the butter previously melted and the eggs. Beat well, add a little more flour, and bake in muffin rings.

After filling in rings, which latter should be filled half full, allow to rest for 30 minutes before baking.

MOTHER MUFFINS.

Very quickly made.

Ingredients used:

1 pint milk.
1 oz. melted butter.
1 yeast cake, Fleischmann's.
1 egg.
1 teaspoon salt.
Flour.
2 tablespoons sugar.

Make sponge with the milk (luke-warm), yeast and sugar, and sufficient flour to make very soft batter. Allow to rest 20 to 30 minutes; then add all the other ingredients, mix until smooth, and add sufficient flour to make a regular muffin batter. Beat for two minutes and bake in hot oven.

MOTHER GRAHAM MUFFINS.

They are made the same as mother muffins, only omit the sugar, adding ½ cup molasses to the sponge instead, and use half and half white and graham flour.

HOMINY MUFFINS.

Exactly the same as rice muffins, except substitute hominy for rice.

BUCKWHEAT CAKES.

Ingredients used:

1 quart buckwheat flour.
1 oz. Fleischmann's Yeast.
1 teaspoon salt.
½ cup Indian meal.
½ cup molasses.

Add to the above sufficient luke-warm water to make a regular batter, beat well and allow to rest for two hours.

If set over night, use only ½ cake compressed yeast and add ½ teaspoon soda in the morning, previously dissolved in a tablespoonful of water.

It is then ready for the griddle.

FLANNEL CAKES.

Ingredients used:

1 quart milk.
1 Fleischmann's Yeast cake.
1 oz. butter, melted.
2 eggs.
1 teaspoon salt.

Set sponge with half of milk and yeast. Allow to rest until it drops back; then add the other ingredients and beat thoroughly. Allow to rest for half an hour more. It is then ready. Time in all, two hours.

If sponge is set over night, use ¾ of the milk and add the salt to the sponge, using only ½ yeast cake.

Add the other half of yeast cake in the morning, with rest of milk and other ingredients; allow to rest for 20 minutes. It is then ready for the griddle.

BATTER CAKES.

Ingredients used:
2 cups white Indian meal.
2 cups white flour.
1 oz. butter.
1 quart milk.
1 Fleischmann's Yeast cake.
1 teaspoon salt.

Set batter over night, using all ingredients except the butter; in the morning add ½ teaspoon soda dissolved in a little water, then the melted butter; beat thoroughly, let rise for 15 minutes. The mixture is then ready for the griddle.

MISCELLANEOUS—ICING FOR SWEET CAKES.

PLAIN ICING.

For each pint of water, use whites of two eggs, beaten to a stiff froth. Add all the sugar possible; then, little by little, add the boiling water. After the addition of the water again add sufficient XXXX sugar to make frosting of the thickness desired.

Flavor either with extract of fruit, lemon or vanilla, or with liquors such as Maraschino, Kirschwasser, rum, brandy, etc.

It may be colored any shade desired.

To obtain a glossy surface, place cakes, after icing, for five seconds inside of oven door.

FONDANT (Boiled Icing).

Take granulated sugar, add enough water and a little cream of tartar previously dissolved in a little water. (For 20 lbs. sugar, use 1 oz. cream of tartar). Boil the sugar for five minutes, then skim until clean, washing the side of the pan with cold water to cleanse from the impurity settling on pan during boiling.

Boil to the soft ball, then remove and pour onto a slab previously sprinkled with ice water. Let rest awhile, then work with spatula until it becomes white and creamy. Place in a jar, cover with a damp cloth, and set in a cool place.

It can also be creamed in the pan in which it has been boiled. In this case, allow to cool down some, and then stir constantly until creamy and too thick to stir more. Then work with hands until smooth.

When using, put as much as needed in a small pan, flavor, thin down over fire until luke-warm; if too stiff, add a little water. Never allow this icing to become hot over fire.

CHOCOLATE ICING.

Chocolate icing can be made to good advantage by adding a little melted chocolate to either fondant or plain icing, and add a little vanilla flavor.

SUGAR BOILED TO SOFT BALL.

Sugar is boiled to a soft ball, when the adhering sugar to a teaspoon dipped in ice water, then in boiling sugar and immediately again in ice water, will form a soft ball when worked between the thumb and finger.

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